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CLINICAL USE OF EXTRACTS FROM THE OVARIES

AND OF SYNTHETIC PRODUCTS HAVING
SIMILAR ACTIONS

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The original concept of the ovary as an endocrine gland which may produce various clinical syndromes due to increased or decreased formation of some basic secretion was a very simple explanation of abnormal function. However, the advances of the past few years have shown that the problem is much more complicated, since many active biologic substances are concerned. They may be considered as falling into two main groups. First are the estrogens, or estrogenic substances, and second progestin or corpus luteum derivatives.

A. ESTROGENIC SUBSTANCES

The estrogens are chiefly concerned with the maintenance of the female accessory genital organs. Their production is not limited to the gonads, and various forms are found widely distributed in nature. They occur in both males and females and it is possible that some of these substances are produced by the adrenal glands. Under physiologic and experimental conditions they promote growth of the endometrium, the vaginal mucosa, the mammary gland ducts and various general metabolic changes such as retention of nitrogen, sodium chloride and water.

Preparations.—Estrogenic hormones are found on the market under a bewildering array of proprietary names and variegated preparations. Their employment offers a real problem to the conscientious physician wishing to determine the indications for their usage, the type of product he should recommend, the correct dosage and the method of administration.

The estrogenic substances normally found in the human being are chiefly three sterols, namely estrone, estriol and estradiol. Commercial preparations are composed of these hormones or of derivatives such as alpha-estradiol benzoate or alpha-estradiol dipropionate. They are generally available in pure chemical form, but a few products are mixtures of several estrogens.

The question of dosage is very confusing. Many potent preparations are available and are effective clinically if sufficient amounts are administered. There are many difficulties in assaying their estrogenic activity, and it is not possible to compare either one hormone with another or the product of one manufacturer with

that of a competitor.¹ Among the handicaps are problems of varying sensitivities among colonies and species of test animals, differences resulting from methods of administration, variations in rates of absorption of different compounds, and the lack of a standard which can be applied to all estrogens singly or in mixtures.

The only international standards which have been adopted are for estrone and alpha-estradiol benzoate, and in each case 1.0 mg. of the pure crystalline substance is said to contain 10,000 international units. In spite of this, however, there is a great variation in the estimates made by different observers. There are no biologic standards for the other estrogens, although a commendable advance has been made where the purified hormone is offered in terms of weight. In this case it is important again to draw attention to the fact that the activity of one substance should not be compared directly with that of another on the basis of equivalent weights.

The accompanying table gives the names of some preparations, together with their methods of administration and the range of the single dosages which are in general clinical usage.

Attention has been directed in recent years to a number of substances which are not chemically related to the natural estrogens but which are endowed with estrogenic activity. One of these, diethylstilbestrol, or 4, 4'-dihydroxy-alpha:beta-diethylstilbene, has been released for sale in this country by the Food and Drug Administration. It is generally referred to as "stilbestrol," but strictly speaking this is incorrect, as stilbestrol is the "mother substance" from which diethylstilbestrol is derived.² Its estrogenic potency is very high; it is effective when given orally, by hypodermic injection or by local application, and it has the virtue of being inexpensive as compared with the natural estrogens. There are some serious objections to its employment, however, as described later, and other synthetic drugs have been, and probably will continue to be, developed in order to overcome this handicap. One of these is hexestrol, or dihydrodiethylstilbestrol, which, although about one-fifth as effective as stilbestrol, is reputed to produce active clinical results when sufficient dosages are employed.³

Methods of Administration.—The estrogenic may be administered effectively in a number of ways, and a careful choice of the method, according to the clinical indications for their employment, may be important.

1. The estrogens are effective by mouth but must be given in larger doses than when given by injection. Estriol or stilbestrol are the preparations of choice for

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1. Freed, S. C.: Present Status of Commercial Endocrine Preparations, *J. A. M. A.* 117: 1175 (Oct. 4) 1941.
2. Designations "Stilbestrol" and "Diethylstilbestrol" for Estrogen 4: 4'-Dihydroxy-alpha:beta-diethylstilbene and Its Diethyl Derivative, Council on Pharmacy and Chemistry, *J. A. M. A.* 117: 16 (1941).
3. Bishop, P. M. F.; Bowes, R. K.; Boycott, M.; Gregor, T. N., and Murless, B. C.: *Lancet* 1: 629, 1941.

oral administration. This method is desirable in treating patients with mild climacteric symptoms, some children with vulvovaginitis, men with prostatic carcinoma, for the suppression of lactation, and under some circumstances when it is not possible to employ hypodermic injections.

2. Since most of the available preparations are made up in oil, they are best given by intramuscular injection, especially when it is desirable to employ large dosages. It is claimed that estradiol dipropionate given in this manner is more slowly absorbed and has a more lasting effect than preparations of estrone or estradiol benzoate. On the other hand, when a rapid effect is desired estrone is preferable.

Estrogenic Hormones.

Estrogen	Method of Administration	Range of Single Doses	Examples of Commercial Preparations
Estrone.....	Intramuscular	1,000 to 50,000 I. U. (0.1 to 5.0 mg.)	Estrone (Abbott) Estrone (Lilly) Theelin (Parke, Davis)
	Suppositories	1,000 to 2,000 I. U. (0.1 to 0.2 mg.)	Estrone (Lilly) Theelin (Parke, Davis)
Estrone.....	Intramuscular (crystals)	20,000 I. U. (2.0 mg.)	Theelin aqueous suspension (Parke, Davis)
Sodium estrone sulfate	Oral	1.25 to 3.75 mg.	Premarin (Ayerst, McKenna & Harrison)
Estrilol.....	Oral	0.05 to 0.21 mg.	Emmenin (Ayerst, McKenna & Harrison) Estrilol (Abbott) Estrilol (Lilly)
Alpha-estradiol	Oral	0.1 to 0.5 mg.	Di-Menformon (Roche-Organon) Ovocylla (Ciba) Progynon-DII (Schering)
	Suppositories	0.01 to 0.1 mg.	Ovocylla (Ciba) Progynon-DII (Schering)
	Topical	.....	Ovocylla (Ciba) Progynon-DII (Schering)
Alpha-estradiol benzoate	Intramuscular	0.053 to 1.65 mg.	Ben-Ovocylla (Ciba) Di-Menformon (Roche-Organon) Progynon-B (Schering)
Alpha-estradiol dipropionate	Intramuscular	0.1 to 0.5 mg.	Di-Ovocylla (Ciba) Progynon-DP (Schering)
Ethinyl estradiol	Oral	0.05 to 0.15 mg.	Amuletin (Squibb)
Estrogenic substances	Intramuscular	.....	.....
	Oral	.....	Estrogenic hormones (Upjohn)
	Suppositories	.....	Estrogenic substance (Reed & Charnick) Follacero (Schleiffelin) Menformon (Roche-Organon)
Stilbestrol	Oral	0.1 to 5.0 mg.	.....
Hexe-trol	Oral	0.2 to 3.0 mg.	Hexestrol (Merrell)

3. Solutions of estrogenic hormone are absorbed through the skin and mucosal surfaces. They produce not only a systemic effect but also an intensified local stimulus when employed in this manner. For this reason it is the preferable method of administration (suppositories or ointment) in the treatment of atrophic changes of the vulva and vagina of postmenopausal women and of vulvovaginitis in children.

Three other methods of administration, still under experimental observation, bid fair to change some of our procedures in patients requiring estrogenic hormone: 1. Estrogenic hormones in pure crystalline form are compressed into small pellets which are placed deep in subcutaneous tissues. They are absorbed slowly and exert a continuous estrogenic action for weeks or even months.⁴ 2. In some instances the pellets become surrounded by a protective coat of fibrous tissue

and cease functioning before complete absorption has occurred. There is some evidence that this disadvantage may be overcome by employing injections of an aqueous suspension of crystals of the pure hormone.⁵ The water rapidly disappears, and the disseminated crystals act in the same manner as the pellets. 3. The sublingual absorption of concentrated solutions of estrogen in propylene glycol is an apparently efficient method of administration. In this case a few drops of the hormone are placed under the tongue on each side of the frenulum, from which it is rapidly absorbed.⁶

Adverse Effects.—The large dosages of estrogen recommended by various authors have given rise to fears of possible secondary adverse effects. There is no evidence that they lead to any permanent harm, however, provided they are used for limited periods and in therapeutic doses. If any danger exists it is much more likely to be from their use over a long time rather than from large amounts given for a short time.

If estrogenic hormones are used in the first half of the menstrual cycle they may interfere with normal ovulation, resulting in a subsequent anovulatory flow or a delay in the appearance of the menses. In amenorrheic or postmenopausal women they may lead to abnormal uterine bleeding which may cause alarm and suggest the existence of a carcinoma of the fundus. This complication is especially prone to occur with stilbestrol. It always calls for a thorough investigation, especially the employment of endometrial biopsy.

Experimental studies with rodents have shown that under certain conditions estrogenic substances have carcinogenic properties. For this reason, fear has been expressed that their use in women may have an important influence on the development of malignant tumors. However, conditions in man are very different from those in experimental animals, and there is little reason to believe that any serious danger really exists in the employment of estrogen in therapeutic dosages for short periods of time.

As mentioned previously, a serious objection to the use of stilbestrol is that it may produce disagreeable symptoms, consisting chiefly of nausea and vomiting but at times of vertigo and headache also. Their incidence has been placed by different authors at from 5 to 80 per cent of all patients, and they occur whether the drug is taken orally or by injection, but no evidence has been adduced showing that they result from damage to any vital organs. It is said that they are not prone to occur in pregnant women or post partum, but this is not infallible. Two procedures have been advocated to offset their occurrence. First, a small dose, such as 0.1 mg. orally, is employed at the beginning of treatment and this is gradually increased to the effective therapeutic level. Second, the patient is instructed to take the medicine at bedtime instead of during the waking hours.

Clinical Indications.—The estrogenic hormones have been recommended for many conditions, but the most favorable results have occurred in the treatment of climacteric symptoms, gonorrheal vulvovaginitis in children, senile vaginitis and for the suppression of lactation, and recent studies suggest that they may have a desirable effect in the care of men with carcinoma of the prostate.

5. Salmon, U. J.; Geist, S. H., and Walter, R. L.: Treatment of Menopause: Evaluation of Estrogen Implantation, J. A. M. A. **117**: 1843 (Nov. 29) 1941.

6. Salmon, U. J., and Geist, S. H.: Proc. Soc. Exper. Biol. & Med. **45**: 766, 1940.

4. Deanesley, R., and Parkes, A. S.: Proc. Roy. Soc., London, s. B **134**: 279, 1937. Bishop, P. M. F.: Brit. M. J. **1**: 939, 1938.

The most useful and successful application of the estrogenic hormones is found in the treatment of the vasomotor and nervous symptoms of the climacteric or following castration. Although many suggestions have been made regarding the correct method of administration, it appears that three methods, with or without minor modifications, have received especial attention:

First, the employment of small dosages administered daily by mouth, or by injection two or three times a week, and continued for long periods. In the hands of many observers this has proved a satisfactory plan, but it is hard to determine whether the success of this therapy is from an actual endocrine effect or whether it is purely suggestive treatment.⁷ It is well known also that favorable results have been obtained in mild cases by employing biologically inert ovarian substance or mild sedatives.

Second, the patient is given large amounts of estrogenic hormone for a short period, followed by either oral or parenteral treatment in comparatively small dosages with the idea of securing a "maintenance level." This concept undoubtedly is based on a method of treating hypothyroid disorders by substitution with the glandular substance, but it ignores the fact that ovarian deficiencies cannot be considered in the same light. The prolonged continuation of estrogens may prove harmful, although there is no factual evidence for this statement. Some authors also feel that this type of treatment may interfere with the normal endocrine adjustment of the climacteric epoch and unnecessarily lengthen the duration of the vasomotor and nervous manifestations.

Third, very large doses of estrogens (for example, estrone 10,000 to 20,000 international units, estradiol benzoate 1.5 mg., estradiol dipropionate 2.5 mg.) repeated three to eight times at three to six day intervals for two or three weeks. This procedure overcomes some of the objections to the other methods, although the relief may endure for only a limited period. When this occurs, a new course of therapy becomes necessary but smaller dosages may be employed and freedom from symptoms lasts longer.

The treatment of gonorrheal vulvovaginitis in children is successfully carried out by the use of suppositories containing approximately 1,000 international units of estrogenic hormone. They are introduced daily at home, and the progress of the patient is determined by weekly vaginal smears. It may be necessary to prolong the course of therapy over several weeks, but negative smears usually are obtained in about three weeks. In very young children, and whenever it is not considered desirable to employ suppositories, the estrogens may be given orally (estriol 0.06 mg. daily, stilbestrol 0.1 mg. daily).

The atrophic changes of the vulva and vagina which follow castration or the menopause may produce very distressing symptoms, such as vaginal discharge, slight bleeding, pruritus vulvae, dysuria and dyspareunia. The daily insertion of estrogenic suppositories (estrone 2,000 international units or 0.2 mg., stilbestrol 0.5 mg.) may bring relief within a few days, but it is often necessary subsequently to repeat the treatment. At times the external application of an ointment containing estrogenic substances may prove a valuable adjunct.

The estrogens may be employed as an aid to suppress mammary gland function when it is desirable to inhibit or discontinue lactation. Its chief action is to

diminish local congestion and is of some value in the treatment of acute mastitis. Stilbestrol is generally used at dosages of 5.0 mg. every four hours for from three to five days. It is not unusual to observe a return of milk production a few days after the drug has been discontinued.

In the past two or three years considerable attention has been directed to the employment of estrogens for the treatment of patients with carcinoma of the prostate.⁸ There is still some discussion as to whether they should be used as the sole therapeutic agent or as an adjunct to castration, but some authorities believe they should be reserved for advanced cases in which operative procedures are contraindicated, or as a palliative measure to control distressing postcastration symptoms. Stilbestrol generally has been employed at a daily dosage of 3 to 10 mg. for a period of three to four weeks, after which it is decreased to 1 to 3 mg.

With the other indications advanced for the clinical usage of estrogenic hormones, one enters on less certain ground. The exact reasons for their employment are not always very clear and in some instances are definite abuses of endocrine therapy which well may bring discredit to the whole field.⁹ There are many spontaneous recoveries which can be wrongly accredited to the therapy, and, above all, a favorable influence often may be attributed to a psychotherapeutic effect. In this category, therefore, the value of estrogenic therapy should be regarded as still undetermined.¹⁰ However, several conditions deserve special consideration, namely amenorrhea, intrinsic dysmenorrhea, functional uterine bleeding, periodic mastalgia and the induction of labor.

The employment of estrogenic hormone for most cases of functional amenorrhea is not based on sound physiologic principles. The amenorrhea usually results from deficient ovarian function, and this hormone cannot stimulate the gonads. It is merely substitutive therapy, and although uterine bleeding may be produced easily it is not true menstruation but an abnormal flow which does not necessarily recur in the months following cessation of the treatment. However, in many instances of amenorrhea of short duration a single injection of estrogenic hormone (for example, estrone 20,000 international units, estradiol benzoate 1.5 mg.) may lead to a period of uterine bleeding within a few days. Since the hormone given in this manner does not interfere with a normal pregnancy, the procedure may serve to differentiate between early gestation and "delayed menses" or functional amenorrhea.

The results obtained in the treatment of primary dysmenorrhea direct especial attention to the use of estrogen in some cases, although the difficulty of evaluating the results makes one hesitate to accept them without reservation. The reason for employing these substances is based on the observation that periodic bleeding in hyperplasia endometrii is usually painless, and it also is believed by several authors that estrogen may help to overcome the uterine hypoplasia which often accompanies dysmenorrhea. The estrogen is employed in daily oral dosages of 100 to 500 international units over periods of three months or more, or in larger doses given intramuscularly during the first

8. Huggins, C.; Scott, W. W., and Hodges, C. V.: *J. Urol.* **46**: 997, 1941. Herbst, W. P.: *Biochemical Therapeutics in Carcinoma of Prostate Gland: Preliminary Report*, *J. A. M. A.* **120**: 1116 (Dec. 5) 1942. Kearns, W. M.; Wisconsin M. J. **41**: 575, 1942. Dean, A. L.; Woodard, H. Q., and Twombly, G. H.: *J. Urol.* **49**: 108, 1943.

9. Fluhmann, C. F.: *California & West. Med.* **56**: 345, 1942.

10. The use of estrogenic hormone has been recommended for oligomenorrhea, migraine headaches, vomiting of pregnancy, toxemias of late pregnancy, acne, hirsutism, frigidity, climacteric hypertension and arthropathia ovaripriva.

7. Pratt, J. P., and Thomas, W. L.: *Endocrine Treatment of Menopausal Phenomena*, *J. A. M. A.* **109**: 1875 (Dec. 4) 1937.

two weeks of the menstrual cycle. Some of the favorable results obtained in the latter group are probably due to an interference with ovulation producing an "anovulatory menstruation." In most instances there is a rapid return of the symptoms following the cessation of treatment.

The estrogens have been employed for the control of various types of functional uterine bleeding, especially in younger persons. The exact mechanism by which this is brought about is not quite clear, and permanent relief is not always obtained. Although the natural estrogens in high doses may be used successfully, stilbestrol has been generally recommended at daily doses varying from 2 to 5, and even as high as 15 mg. The hormone is continued until cessation of the bleeding and may be repeated at cyclic intervals.

The condition of periodic mastalgia, or painful breasts, during the premenstruum has received considerable attention, and estrogenic hormones have been highly recommended as an effective method of therapy. It is necessary to postpone final judgment, however, since good results have been reported from biologically inert ovarian substance as well as ridiculously small amounts of potent estrogenic hormone. It is difficult to conceive that such a procedure can have a true endocrine effect. A number of investigators advocate the employment of as much as 100,000 international units of estrone weekly for a period of three months in an attempt to produce an artificial inhibition of the anterior lobe hyperfunction, which they believe is the causal factor.

As an aid in cases of uterine inertia, estrogens alone have not proved of great value in most instances,¹¹ but since they sensitize the uterus so that it responds more readily to stimulation by oxytocics they have been employed as a preliminary step in the induction of labor.¹² They are given the preceding day in large doses in one of the preparations which is more quickly absorbed (for example, estrone 50,000 international units, estradiol benzoate 3.0 mg. or stilbestrol 100 to 200 mg. orally). During the actual induction the following day the initial dose of posterior pituitary injection should not exceed 1 or 2 minims (0.06 to 0.12 cc.) in order to determine the degree of uterine reactivity which has resulted.

B. PROGESTIN

The term "progestin" refers to pure crystalline substances or to impure extracts which have the same biologic effect as "progesterone," the purified product of the corpus luteum. It is a hormone which is solely concerned with reproduction and is unique among the endocrine glands, as it is produced only at cyclic intervals and during gestation. During the second half of the menstrual cycle it induces the qualitative changes which prepare the endometrium for the nidation of the ovum. It is also manufactured by the placenta, and its effect continues throughout the duration of pregnancy. Another important action of this substance is the inhibiting or diminishing of uterine contractions.

Preparations.—Progesterone is now available for clinical use in pure chemical form. It may be obtained by extraction of corpora lutea, or it may be a synthetic preparation from one of the vegetable sterols, notably stigmasterol. In addition there are incompletely purified extracts which may be considered as "progestin," since they contain varying amounts of the hormone.

They are not effective orally and are offered in an oily solution for intramuscular injection.

Considerable difficulty was experienced at one time in defining the dosage of progestin or progesterone, because several kinds of "units," based on different laboratory procedures, were employed. However, in 1935 a committee of the League of Nations adopted an "international unit" which has greatly simplified the problem. This unit is defined as the progestational activity contained in 1 mg. of progesterone and is determined with suitably prepared rabbits.

A derivative of testosterone, pregnenolone, has been found to possess the ability to induce progestational changes in women and in experimental animals. It has the distinct advantage of being effective by oral administration but must be given in from five to ten times the equivalent dosage by weight of progesterone. It is manufactured in this country by the Schering Corporation under the name of "pranone." In 1941 the Council on Pharmacy and Chemistry¹³ felt that clinical results with this substance were still too inconclusive for its acceptance, but several favorable reports on its use have been published.

Indications.—The main indications for the clinical use of progestin are based on its biologic characteristics, but the difficulty of interpreting the results in conclusive terms makes one feel that the problem is still in the experimental stage. Nevertheless, numerous favorable reports direct attention to its judicious employment in cases of habitual or threatened abortion, certain types of functional uterine bleeding, "after-pains" and dysmenorrhea.¹⁴

The employment of progestin for women who repeatedly abort during early pregnancy is based on the fact that the corpus luteum is necessary for the implantation and early development of the ovum. It is therefore believed that in some instances the repeated interruption of pregnancy is due to insufficient production of progesterone, an observation which is supported by studies on pregnandiol, the excretory product of this hormone.¹⁵ In such cases the administration of the hormone (progesterone 1 to 5 mg. daily, pranone 10 to 30 mg.) should be started as early as possible and continued until the fourth month of gestation, when the placenta is believed to become active in its production. Needless to say, the high cost of the available products is a serious obstacle to this type of therapy.

The reasons for employing progestin in cases of threatened abortion are the same as for habitual abortion, with the additional possibility that it may have a favorable influence by diminishing or inhibiting uterine contractions. When cramps and bleeding are present larger daily doses, such as 5 to 10 mg. of progesterone or 30 to 40 mg. of pranone, should be employed. After subsidence of the symptoms the daily dose should be diminished to progesterone 1 to 5 mg. or pranone 5 to 10 mg. and continued until the fourth month of gestation.

A large proportion of cases of so-called functional uterine bleeding is due to the endocrine disturbance generally referred to as "hyperplasia of the endometrium," which results from an overactivity of estrogen in the absence of corpus luteum function. In such

13. Pregnenolone and Pranone, report of the Council on Pharmacy and Chemistry, J. A. M. A. 116:1054 (March 15) 1941.

14. On the other hand, the claims for its therapeutic efficiency based on actual endocrine effects in such conditions as pernicious vomiting of pregnancy, amenorrhea and premenstrual tension should be viewed with many reservations.

15. Browne, J. S. L.; Henry, J. S., and Venning, E. H.: Am. J. Obst. & Gynec. 38:927, 1939.

11. Jelliffe, T. N. A.: J. Obst. & Gynec. Brit. Emp. 46:893, 1938.
12. Abraham, R.: Surg., Gynec. & Obst. 73:257, 1941.

cases progestin is valuable in controlling the bleeding and should be given in high daily doses, such as progesterone 5 to 10 mg. or pranone 20 to 40 mg. for from three to ten days.

The inhibitive effect of progestin on uterine contractions has led to its employment for "after-pains," which may be controlled by as little as 1 mg. of progesterone. However, the ease with which this postpartum complication usually can be treated successfully with sedatives does not make the employment of an expensive endocrine preparation very attractive.

Progesterone has been given patients with primary dysmenorrhea because of its action on the myometrium and also on the basis of the unproved theory that this condition is due to a defective corpus luteum. The treatment is usually begun seven to ten days before the onset of the menses by giving 1 to 3 mg. of progesterone or 5 to 10 mg. of pranone every one or two days. Although immediate favorable results have been reported in a fair number of cases, permanent cures are found in far fewer instances.

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HORMONES OF THE ANTERIOR LOBE OF THE PITUITARY BODY

A CLINICAL REVIEW

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The authors of other papers in this series have an advantage in that they are writing about hormones which in most instances have been isolated in a pure form, in some instances have been synthesized and in all instances have been given adequate clinical trial. The lactogenic hormone is the only one of the anterior pituitary hormones that has been obtained in crystalline form;¹ no hormone of the anterior lobe has been synthesized and few have had extensive clinical trial.

Certainly more than nine tenths of the articles written on the anterior lobe of the pituitary body pertain to fundamental studies of anatomy, histology, physiology, biochemistry and allied subjects. Two excellent sources of reference to this material are Van Dyke's^{1a} work on "The Physiology and Pharmacology of the Pituitary Body" and the collection of articles published by the American Medical Association entitled "Glandular Physiology and Therapy."²

For several years the current literature has been summarized in reviews,³ and the literature has again

been searched for references to the clinical use of these hormones. Sevringhaus⁴ and Aub and Karnofsky⁵ have summarized the clinical aspects of this problem. I have had the opportunity to see a great many patients who have, or were supposed to have, disturbances of the anterior lobe of the pituitary body, many of whom were treated with anterior pituitary extracts which were made available by pharmaceutical firms. No reports of these experiences have been published.

There are several reasons why this whole subject of the anterior lobe of the pituitary body is very discouraging. First, that scientists working in different laboratories have had so few agreements. If one group of workers is sure there is a single growth hormone available in pure form, another group doubts that this is true and postulates that the growth effect results from a combination of other pituitary hormones. One laboratory finds four or five separate gonadotropic hormones; another laboratory finds only one. There are investigators who question whether these are really separate hormones and who suggest that a few "principles" may have varying effects on different end organs. The clinician is bewildered by these conflicting opinions, by the great difference in species response, by the confusing difference in types of units, and he is inclined to say "if, with thousands of animals and the opportunity of careful control, these scientists are so far from agreement, how can one be expected to evaluate clinical response in a few patients?"

Second, the clinician knows that all anterior pituitary hormones are proteins and he suspects that, in order to make the extracts sufficiently free of protein for human injection, most of the active principles have been removed. (Some very valuable hormones, such as insulin, however, are proteins and cannot be synthesized.) Certainly discriminating clinicians have been disappointed with the use of the extracts which were available. Assays of these extracts are not inclined to change this suspicion.⁶

Referring again to the fundamental studies, the clinician asks "Just how many anterior pituitary hormones are there?" He will find no answer in the available literature, but he will find discussions of many "fractions" including thyrotropic, somatotropic (growth), mammatropic, lactogenic, pancreatropic, diabetogenic, adrenocorticotropic, gonadotropic, and those affecting the metabolism of carbohydrate, protein, fat and water. Space prevents a discussion of all these but a few will be described.

GROWTH HORMONE

No clinician doubts the important relationship of the anterior lobe of the pituitary body to growth. He has seen cases in which gigantism and acromegaly resulted from adenomas of the eosinophilic cells; he has seen

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1. Since this paper was written Li and Evans have reported the isolation in pure form of pituitary growth hormone (*Science* **99**:183-184 [March 3] 1944).

1a. Van Dyke, H. B.: *The Physiology and Pharmacology of the Pituitary Body*, Chicago, University of Chicago Press, 1936, vol. 1; 1939, vol. 2.

2. *Glandular Physiology and Therapy: A Symposium Prepared Under the Auspices of the Council on Pharmacy and Chemistry of the American Medical Association*, Chicago, American Medical Association Press, 1942.

3. Rynearson, E. H., and Hodgson, C. H.: Recent Advances in Our Knowledge of the Anterior Lobe of the Hypophysis, *Arch. Int. Med.* **62**:160-176 (July) 1938. Rynearson, E. H., and Schweiger, L. R.: Review of Literature on the Pituitary Body (1938 and 1939), *ibid.* **66**:226 (July) 1940. Rynearson, E. H., and Hildebrand, A. G.: Metabolism and Diabetes: Review of Certain Recent Contributions, *ibid.* **68**:134-175 (July) 1941. Hildebrand, A. G., and Rynearson, E. H.: Diseases of Metabolism: Review of Certain Recent Contributions, *ibid.* **69**:344-365 (Feb.) 1942; Review of the Literature on the Pituitary Gland (1940 and 1941), *ibid.* **71**:262-296 (Feb.) 1943.

4. Sevringhaus, E. L.: Dysfunctions of the Anterior Lobe of the Pituitary and Their Treatment, *J. A. M. A.* **116**:221-225 (Jan. 18) 1941.

5. Aub, J. C., and Karnofsky, D.: Medical Progress; Endocrinology: Treatment of Abnormalities of the Anterior Pituitary Gland, *New England J. Med.* **226**:759-768 (May 7) 1942.

6. Evans, J. S.; Hines, L. R.; Varney, R., and Koch, F. C.: Comparative Assay of Gonadotropic Substances on Rats, Mice and Chicks, *Endocrinology* **26**:1005-1011 (June) 1940. The Present Status of the Gonadotropic Hormone from the Serum of Pregnant Mares: Gonadogen (Cutter Laboratories) Not Acceptable for N. N. R., report of the Council on Pharmacy and Chemistry, *J. A. M. A.* **115**:1998-1999 (Dec. 7) 1940. Gustafson, R. G., and D'Amour, F. E.: The Assay of Gonadotropins and of Gonadal Hormones, *ibid.* **117**:188-193 (July 19) 1941. The Present Status of Therapy with Chorionic Gonadotropin, report of the Council on Pharmacy and Chemistry, *ibid.* **114**:487-489 (Feb. 10) 1940. D'Amour.¹¹ Chorionic Gonadotropin (Fellutrin).¹² Freed.¹³

instances of pituitary dwarfism; he may have seen instances of Simmonds' cachexia. He knows, however, that many glandular extracts contribute to growth, for he has seen a child with juvenile myxedema grow 6, 7 or more inches in a year as a result of administration of thyroid. He asks "Is there a single growth hormone?"

Evans, who has dedicated more than twenty years of study to this subject, has been convinced that the answer to this question is "Yes!" The clinician should read his evidence.⁷ He also should read the articles by Riddle and his associates,⁸ referred to by Evans, who answered this question "No." P. E. Smith⁹ reviewed the evidence and agreed that "in mammals a specific principle is secreted by the hypophysis which is essential for general body growth."

Growth hormone has been available enough years to have had extensive clinical trial. Relatively few physicians have found their experience sufficiently encouraging to warrant publication. When asked why they haven't recorded their results, the usual answer is "I've never seen growth hormone help any one." It is a difficult matter to evaluate the published reports. First, the preparation itself may not always have been potent. Second, rarely has the growth hormone been used alone. Third, the selection of cases often has been poor. Fourth, standards for growth are not established. Heredity, diet, environment, rate of maturation, many hormones—all are involved in growth, and students of this problem are presenting valuable information.¹⁰

The literature contains many references to the clinical use of the growth hormone.¹¹ Some of these

reports are not scientifically sound. The cases are poorly selected, the patients poorly controlled, the treatment is multiple (almost always including thyroid), yet the conclusion often is "A dramatic response followed the use of growth hormone."

The title of one paper (Jacobsen and Cramer¹²) is "Clinical Results of Anterior Pituitary Therapy in Children," yet in 9 of the 10 cases reported the children received both thyroid and anterior pituitary. Ruppertsberg's¹³ patient was treated with a low calory diet, oral administration of thyroxin and anterior pituitary and the hypodermic administration of growth extract.

Shelton¹⁴ has probably had a longer and greater experience with the clinical use of the growth hormone than any other individual. His earlier papers were enthusiastic. In his latest paper¹⁵ he reviewed the whole subject in detail and said:

In spite of my early enthusiasm I have seen but one proven case of growth stimulation in a child by the use of such material [growth hormone]. This child had absolutely nothing but the anterior pituitary extract in large doses for several years. Every other patient I have seen recorded as treated successfully received thyroid and/or vitamins and minerals, hydrochloric acid or some other medicament which may have influenced growth concomitantly.

Growth has followed the use of hormones other than the growth fraction.¹⁵

THE THYROID STIMULATING HORMONE

The thyroid stimulating hormone is an accepted hormone which, when injected into certain test animals, can reproduce all the signs and symptoms of toxic diffuse goiter, including exophthalmos. Study of the thyroid gland of treated animals shows the typical hyperplastic changes seen in the thyroid gland removed from patients suffering from this disease. This constitutes a great advance in knowledge but has raised

7. Evans, H. M.: Growth Hormone of the Anterior Lobe of the Pituitary Gland, in *Glandular Physiology and Therapy*, pp. 19-31.

8. Bates, R. W.; Laanes, T., and Riddle, O., cited by Evans.

9. Smith, P. E.: Relationship of Anterior Lobe of the Hypophysis to Other Endocrine Glands, in *Glandular Physiology and Therapy*, pp. 3-18.

10. Meredith, H. V.: Stature and Weight of Children of United States, with Reference to the Influence of Racial, Regional, Socio-economic and Secular Factors, *Am. J. Dis. Child.* 62: 909-932 (Nov.) 1941. Lloyd-Jones, O.: California Tall Children, *ibid.* 60: 11-21 (July) 1940. Greenlich, W. W.; Day, J. G.; Lachman, S. E.; Wolfe, J. B., and Shuttlesworth, F. K.: A Handbook of Methods for the Study of Adolescent Children, Monographs of the Society for Research in Child Development, Washington, D. C., Society for Research in Child Development, National Research Council, 1938, vol. 3, number 2, serial number 15. Jung, F. T.: The Physiological Changes Incident to Puberty, *Illinois M. J.* 80: 477-484 (Dec.) 1941. Nathanson, I. T.; Towne, L. E., and Aub, J. C.: Normal Excretion of Sex Hormones in Childhood, *ibid.* 78: 851-865 (June) 1941. Greene, J. A., and Johnston, J.: Changes by Extracts of Anterior and Nontumorous Dwarfism, *J. Clin. Endocrinol.* 1: 327-330 (April) 1941. Lee, M. O., and Schaefer, N. K.: Anterior Pituitary Growth Hormone and the Composition of Growth, *J. Nutrition* 7: 337-363 (March) 1934. Long, C. N. H.: Pituitary Hormones Influencing Growth in Higher Animals, in *Cold Spring Harbor Symposia on Quantitative Biology*, Cold Spring Harbor, L. I., New York, Biological Laboratory, 1942, vol. 10, pp. 91-103. Johnston, J. A., and Maroney, J. W.: Observations on Nitrogen and Calcium Balances as Affected by Growth and Gonadotropic Hormones Administered for Short Periods to Growing Children, *Endocrinology* 25: 199-210 (Aug.) 1939. Bayer, L. M., and Gray, H.: Pituitary Dwarfism: Their Growth and Treatment; Observations on 12 Cases for Periods of One to Eight Years, *California & West. Med.* 47: 228-232 (Oct.) 1937. Watson, E. H., and Moehlig, R. C.: Suggestions for Conducting Growth Studies, *Endocrinology* 27: 411-424 (Sept.) 1940. Webster, R.: Modifiability of Growth by Administration of Endocrine Substances, *J. Pediatr.* 14: 684-690 (May) 1939.

11. Greene, J. A.; January, L. E., and Swanson, L. W.: Use of Anterior Pituitary Extracts in Uncontrolled Diabetes Mellitus with Growth and Sexual Retardation, *J. Clin. Endocrinol.* 1: 538-540 (June) 1941. Looney, J. M.: The Treatment of Pituitary Dwarfism with Growth Hormone, *Endocrinology* 26: 163-166 (Jan.) 1940. Schaefer, R. L.: Endocrine Dwarfism, *ibid.* 20: 64-71 (Jan.) 1936. Schaefer, R. L., and Strickroth, F. L.: Endocrine Dwarfism, *ibid.* 26: 599-604 (April) 1940. Shechter, F. R.; Steinberg, A.; Pastor, N.; Segal, H. I., and Colton, N. H.: Dwarfism: Diagnostic Criteria and Endocrine Therapy, *Growth* 6: 419-449 (Dec.) 1942. Werner, A. A.; Lewald, J.; Johns, G. A., and Kelling, D.: Growth in Children with Mongolism: A Four Year Study of Eight Patients, *Am. J. Dis. Child.* 57: 554-563 (March) 1939. Buchanan, J. A., and Ballweg, H. A.: A Case of Pituitary Dwarfism Treated with Antuitrin-G, *Endocrinology* 24: 565-571 (April) 1939. Molitch, M., and Poliakov, S.: Clinical Results of Anterior Pituitary Therapy in Children, *ibid.* 22: 422-428 (April) 1938. Taylor, N. M.: Pituitary Dwarfism: Treatment with

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12. Jacobsen, W. A., and Cramer, A. J.: Treatment with Anterior Hypophyseal Extract, *J. Dis. Child.* 47: 719-736, (April) 1934.

13. Ruppertsberg, A.: Treatment of Juvenile Adiposogenital Dystrophy with Antuitrin, Report of Case, *Endocrinology* 18: 233-234 (March-April) 1934. Hurxthal, L. M.: Treatment of Gigantism: Observations on Pituitary Giant for Six Years, *J. Clin. Endocrinol.* 3: 12-19 (Jan.) 1943. Shelton, E. K.

14. Shelton, E. K.; Cavanaugh, L. A., and Evans, H. M.: Hypophyseal Infantilism: Treatment with an Anterior Hypophyseal Extract; Final Report, *Am. J. Dis. Child.* 52: 100-113 (July) 1936. Turner, H. H.: Anterior Pituitary Dwarfism: Further Report of Cases Treated with the Growth Hormone, *South. M. J.* 28: 309-316 (April) 1935.

15. Shelton, E. K.: Clinical Aspects of Dwarfism, *Endocrinology* 30: 1000-1014 (June) 1942.

16. Severinghaus, A. E.: The Relation of Gonadotropic and Thyrotropic Hormones to Development, in *Cold Spring Harbor Symposia on Quantitative Biology*, 1942, vol. 10, pp. 104-110. Dorf, G. B.: Chorionic Gonadotropic Effects on Height and Osseous Development in Sexually Underdeveloped Young Boys, *Endocrinology* 27: 403-410 (Sept.) 1940. Rapid Growth in Height Produced by Chorionic Gonadotropin in a Dwarfed Infantile Identical Twin, *J. Clin. Endocrinol.* 1: 940-944 (Dec.) 1941. Wilkins, L.; Fleischmann, W., and Howard, J. E.: Creatinuria Induced by Methyl Testosterone in the Treatment of Dwarfed Boys and Girls, *Bull. Johns Hopkins Hosp.* 69: 493-503 (Dec.) 1941.

(Footnote 11 continued in next column)

more questions than it has settled. The many articles dealing with the fundamental aspects of this hormone are to be found in Van Dyke's books and Collip's summary. Collip¹⁶ discussed the relation of the thyrotropic hormone to other hypophysial principles, the mechanism of its action, methods for its assay, the thyrotropic content of the blood and urine in various diseases, the preparation of the active extracts and the effect of iodine on the action of this hormone. These headings are listed because they indicate the detailed study which this hormone has received.

It has not had an extensive clinical trial. Wilkins and Fleischmann¹⁷ have studied it intensively. Thompson and his associates¹⁸ have had the greatest experience with its use, as they have injected it in 145 cases. Since the hormone requires a functioning end organ it is not surprising that it raised the basal metabolic rate in only 1 of 16 cases of myxedema. In patients with a low basal metabolic rate without myxedema, striking effects were sometimes observed; not infrequently the rate was raised to thyrotoxic levels:

In 18 patients with rates varying from -29 per cent to +8 per cent [that is, subnormal to normal] the basal metabolism was raised to levels varying from +15 to +47 per cent, in association with the development of many of the signs and symptoms of thyrotoxicosis except exophthalmos. These symptoms usually began to disappear immediately following omission of treatment or disappeared gradually if treatment was continued. The nervous manifestations of the syndrome simulated closely those seen in toxic goiter and included nervousness, tremor, crying spells, insomnia and inability to lie or sit still. So far as we could tell, the clinical state was similar to that seen in most cases of toxic goiter. Of considerable interest was the development of cardiac decompensation and auricular fibrillation in 1 patient in whom the rate was raised from -2 to +47 per cent. Both disappeared after the administration of the extract was omitted. Cardiac decompensation also developed in a patient with toxic goiter when the rate was raised from +48 to +74 per cent.

The ideal test subject for the use of the thyrotropic hormone should be a patient suffering from "pituitary myxedema." Lerman and Stebbins¹⁹ reported its unsuccessful use in such a patient.

THE GONADOTROPIC HORMONE OR HORMONES

As previously mentioned there is no general agreement as to the number of pituitary hormones which affect the male and female gonads. Gonadotropins are of three types: (1) those obtained from the anterior lobe of the pituitary body, (2) those extracted from pregnancy urine (chorionic) and (3) those extracted from the serum of pregnant mares (equine). The last two are probably products of the chorioplacental tissues and can best be described as "pituitary-like." Theoretically the gonadotropin of choice should be that obtained from the pituitary body itself. Hamblen²⁰

said "There are no extracts of the anterior pituitary which are sufficiently free of toxic or reaction-producing materials for satisfactory clinical use and which combine potency and practicability for prolonged therapy." Few published reports record experience with true pituitary gonadotropins.²¹ Many articles deal with the use of chorionic and equine gonadotropins.²² The chorionic type has had years of clinical application, and early reports were enthusiastic. Later reports recorded general disappointment in the treatment of ovarian and testicular failure, and this substance did not receive a favorable report from the Council on Pharmacy and Chemistry.²³ It has been used successfully in certain cases of undescended testes.²⁴ The highly potent equine gonadotropin (Cole and Hart²⁵) revived hope that this might be the answer to the physician's demand. What physicians want is some product which is capable of stimulating the nonfunctioning ovary or testis without unpleasant or dangerous side-effects. Davis and Koff²⁶ made the startling announcement that they actually had produced ovulation in a human being. Many subsequent reports have appeared,²⁷ and

21. Campbell, R. E., and Sevringhaus, E. L.: Pituitary Gonadotropic Extracts for Treatment of Amenorrhea, Menorrhagia and Sterility, *Am. J. Obst. & Gynec.* **37**: 913-928 (June) 1939.

22. Davis, M. E., and Hellbaum, A. A.: Present Status of Gonadotropic Therapy to Gynecologic Practice, *J. Clin. Endocrinol.* **3**: 517-525 (Sept.) 1943. Shorr, E., and Papanicolaou, G. N.: Action of Gonadotropic Hormones in Amenorrhea as Evaluated by Vaginal Smears, *Proc. Soc. Exper. Biol. & Med.* **41**: 629-636 (June) 1939. Bowes, K.: Treatment of Menstrual Irregularities by a New Sex Hormone Preparation: Preliminary Note, *Brit. M. J.* **2**: 904-905 (Nov. 6) 1937. Burch, J. C.: Endocrine Therapy in Obstetrics and Gynecology, *Surg., Gynec. & Obst.* **70**: 503-508 (Feb. 15) 1940. Sevringhaus, E. L.: The Choice of Ovarian or Pituitary Therapy for Menstrual Disturbances, *Ann. Int. Med.* **13**: 629-635 (Oct.) 1939. Sevringhaus, E. L.: Treatment of Genital Hypofunction, *Bull. New York Acad. Med.* **16**: 53-82 (Feb.) 1940. Sevringhaus, E. L., and Campbell, R. E.: Endocrinopathic Amenorrhea: Causes and Treatment, *Am. J. Surg.* **48**: 197-204 (April) 1940. Novak, E.: A Brief Epitome of Gynecologic Endocrinology and Organotherapy, *Am. J. Obst. & Gynec.* **32**: 887-895 (Nov.) 1936; Clinical Syndromes Referable to Failure of Ovulation, with Special Reference to Certain Cases of Sterility, and Functional Bleeding, *ibid.* **37**: 605-616 (April) 1939. Samuels, L. T.; Winther, N., and Yelton, N.: Hormone Therapy and Sex Hormone Excretion, *J. Clin. Endocrinol.* **1**: 485-493 (June) 1941. Ross, R. A.: Sex Endocrinology and Pelvic Surgery, *South. Surgeon* **9**: 387-402 (June) 1940; The Correlation of Sex Endocrines and Pelvic Surgery in Gynecologic Therapy, *South. Med. & Surg.* **102**: 545-549 (Oct.) 1940. Livingston, S. H.; Birnberg, C. H., and Kurzrok, L.: The Treatment of Amenorrhea of Endocrine Origin, *Am. J. Surg.* **44**: 409-415 (May) 1939. Kennedy, R. B., and Sheiton, C. F.: The Mare Serum Hormone in the Treatment of Certain Endocrine Dysfunctions in Women: A Clinical Study, *J. Michigan M. Soc.* **38**: 209-212 (March) 1939. Greenhill, J. P., and Freed, S. C.: Gynecologic and Obstetric Endocrinology, *West. J. Surg.* **49**: 318-330 (June) 1941.

23. Chorionic Gonadotropin (Pellutein), report of the Council on Pharmacy and Chemistry, *J. A. M. A.* **114**: 2306-2307 (June 8) 1940.

24. Kea, C. E.: Further Report on the Treatment of the Undescended Testes by Hormonal Therapy at the University of Minnesota Hospitals: Discussion of Spontaneous Descent of Testis and Evaluation of Endocrine Therapy in Cryptorchidism, *Surgery* **7**: 828-835 (June) 1940. Thompson, W. O., and Hechel, N. J.: Endocrine Treatment of Cryptorchism, *J. A. M. A.* **117**: 1953-1956 (Dec. 6) 1941.

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26. Davis, M. E., and Koff, A. K.: The Experimental Production of Ovulation in the Human Subject, *Am. J. Obst. & Gynec.* **36**: 183-199 (Aug.) 1938.

27. Hamblen, E. C.: The Clinical Evaluation of Ovarian Responses to Gonadotropic Therapy, *Endocrinology* **24**: 848-866 (June) 1939; The Endocrine Therapy of Functional Ovarian Failure, *Am. J. Obst. & Gynec.* **40**: 615-620 (Oct.) 1940. Hamblen, E. C., and Pullen, R. L.: The Endocrine Therapy of Ovarian Failure, *Virginia M. Monthly* **68**: 375-381 (July) 1941. Buxton, C. L.: The Effects of Certain Gonadotropic Extracts on Anovulatory Cycles and Amenorrhea, *Am. J. Obst. & Gynec.* **42**: 236-241 (Aug.) 1941. Mazer, C., and Ravetz, E.: Effect of Combined Administration of Chorionic Gonadotropin and Pituitary Synergist on Human Ovary: Preliminary Report, *ibid.* **41**: 474-484 (March) 1941. Frank, R. T.; Goldberger, M. A., and Felsheim, G.: Clinical and Laboratory Investigations of Some of the Newer Sex Hormone Preparations, *Endocrinology* **27**: 381-384 (Sept.) 1940. Fluhmann, C. F.: The Biologic Characteristics of Equine Gonadotropic Hormone, *West. J. Surg.* **48**: 63-74 (Feb.) 1940. Bouime, R. G.: The Effect of Pregnant Mare Serum Hormone on a Case of Primary Hypo-Ovarianism, *J. Clin. Endocrinol.* **2**: 254-256 (April) 1942. Gray, L. A.: Effect of Pregnant Mare's Serum Hormone on the Abnormal Ovary, *South. M. J.* **33**: 160-170 (Feb.) 1940. Siegler, S. L., and Fein, M. J.: Studies in Artificial Ovulation with the Hormone of Pregnant Mare's Serum, *Am. J. Obst. & Gynec.* **38**: 1021-1036 (Dec.) 1940. Green, R. B., and Krafka, J., Jr.: Ruptured Human Ovary with Corpus Luteum, *Situ. Arch. Path.* **31**: 634-639 (with 6 figs.) (on next page)

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in general the evidence does not support the original claim. Studies on female monkeys by Hartman²⁸ and on male monkeys by Smith²⁹ did not produce satisfactory results; deleterious effects were observed.

Equine gonadotropin (not always alone) has been used in the treatment of sterility of men and women.³⁰ There is little evidence to suggest that there is any effect on spermatogenesis or that, when it is used alone, it will affect sterility of women. The difficulties in establishing criteria for the determinations of effectiveness is stressed in several of these articles.³¹

Gusman and Goldzieher³² discussed the synergism between pituitary extracts and chorionic gonadotropins. Hamblen³³ has advocated what he termed the "1-2 treatment." He summarized this program as follows:

The cyclic 1-2 gonadotropic schedule attempts to duplicate the hormonology of the menstrual cycle and takes into account a likely synergism of the follicle-stimulating and luteinizing gonadotropin fractions. It embraces the sequential and cyclic use of equine gonadotropin for its follicle-stimulating properties (follicle-stimulating hormone) and chorionic gonadotropin for its luteinizing ability (luteinizing hormone). The therapeutic schedule is as follows: Beginning on the fifth day of the cycle equine gonadotropin is given intramuscularly in daily doses of 400 I. U. for ten days; beginning on the sixteenth day of the cycle, chorionic gonadotropin is given intramuscularly in daily doses of 500 I. U. for ten days. We and others have found this form of therapy to be effective in inducing ovulation in some patients with anovulatory ovarian failure.

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LACTOGENIC HORMONE

In order that breast tissue may produce milk, it must have developed and grown normally, must have been influenced by other hormones (particularly estrogens) and must have received the stimulus from an anterior pituitary lactogenic hormone. Riddle³⁴ has reviewed the large amount of study given this role of the pituitary body and has discussed the possibility that there may be at least two pituitary hormones: mammogenic, which affects the growth and development of the breast, and lactogenic, which initiates lactation. The lactogenic hormone (prolactin) is the only one of the pituitary hormones which is available in crystalline form;¹ therefore, it might be expected to produce less controversial results than other pituitary fractions, but such is not the case. Few reports of its clinical use have been published since Riddle's review appeared.³⁵

In summary, these articles reveal first the great complexity of the process of lactation and the number of hormones which by their absence or excess may interfere with the normal production of milk. Riddle said:

Since it is thus obvious that so much of the organism—assimilative, endocrine and neural—becomes involved in the initiation, augmentation and maintenance of lactation, the term "lactogenic hormone" is equivocal and its use often a serious error; others (not ourselves) have rather generally ventured to employ this term as an alternative designation for that hormone which was found to initiate milk secretion in prepared mammary tissue and which after its isolation and establishment as an entity was called prolactin. Lactogenesis involves several hormones and many other factors; prolactin is a specific substance. Only full recognition of this distinction, along with awareness of other actions of prolactin, is likely to lead to satisfactory clinical use of this substance.

Second, when the hormone is given in doses of from 100 to 400 units per day to postpartum women with deficient lactation the results are very variable. Some reports are very encouraging; on the other hand, Werner³⁶ stated that "the present preparations of lactogenic hormones are impure and unsafe for human use." Kenny and King³⁷ studied 86 women, 43 of whom were treated with the usual methods (breast pump and "galactagogues") and 43 of whom were treated with prolactin. Seventy-four per cent of the treated patients and only 21 per cent of the control

34. Riddle, O.: Lactogenic and Mammogenic Hormones, in *Glandular Physiology and Therapy*, pp. 67-82.

35. Asdell, S. A.; Brooks, H. J.; Salisbury, G. W., and Seidenstein, H. R.: Experiments in the Physiology of Mammary Development and Lactation, *Memoir 198, Cornell Agricultural Experiment Station* 1936. Folley, S. J., and Young, F. G.: The Effect of Anterior Pituitary Extracts on Established Lactation in the Cow, *Proc. Roy. Soc. London, B* 126:45-76 (Sept. 23) 1938. Asimow, G. I.: Probleme der Laktationsphysiologie, in *Proceedings of the Fifteenth International Physiological Congress, Leningrad-Moscow, Aug. 9 to 16, 1935, Moscow, State Biol. & Med. Press, 1938*, pp. 132-133. Graham, W. R., Jr.: Action of Thyroxine on Milk and Milk-Fat Production of Cows, *Biochem. J.* 28:1368-1371, 1934. Brownell, K. A.; Lockwood, J. E., and Hartman, F. A.: Lactation Hormone of Adrenal Cortex, *Proc. Soc. Exper. Biol. & Med.* 30:783-784 (March) 1933. Kendall, E. C.; Mason, H. L.; Myers, C. S., and Allers, W. D.: Physiological and Chemical Investigation of the Suprarenal Cortex, *J. Biol. Chem.* 114:147 (May) 1936. Parkes, A. S., and Bellerby, C. W.: Studies on Internal Secretions of Ovary: Effects of Injection of Estrin During Lactation, *J. Physiol.* 62:301-314 (Jan.) 1927. Kurzrok, R.; Bates, R. W.; Riddle, O., and Miller, E. G., Jr.: The Clinical Use of Prolactin, *Endocrinology* 18:18-19 (Jan.-Feb.) 1934. Werner, A. A.: Experiment to Produce Lactation in Castrate Women, *ibid.* 19:144-150 (March-April) 1935. Evans, E. I.: The Lactogenic Hormone of the Anterior Pituitary, *Proc. Inst. Med. Chicago* 11:282-283 (April 15) 1937. Hoffmann, F.: Ueber die Entstehung der Laktation, *Zentralbl. f. Gynäk.* 60:2882-2886 (Dec. 5) 1936. Ross, J. R.: Prolactin: Its Effect on the Secretion of Woman's Milk, *Endocrinology* 22:429-434 (April) 1938. Stewart, H. L., Jr., and Pratt, J. P.: Effect of Prolactin on Mammary Gland Secretion, *ibid.* 25:347-353 (Sept.) 1939.

36. Werner, A. A.: Lactogenic Hormone: Severe Reactions from Its Use, *Endocrinology* 24:119-121 (Jan.) 1939.

37. Kenny, M.; King, E.; Evers, N., and Hurran, W. J.: Effect of Prolactin in Nursing Women, with Notes on Preparation of Prolactin, *Lancet* 2:828-831 (Oct. 14) 1939.

patients received completely satisfactory results. Complete failures occurred in 19 per cent of the treated women and in 63 per cent of the controls.

THE ANTIHORMONES

Two thorough reviews of the antihormones have appeared.³⁸ Thompson, Collip and Selye introduced their summary of this subject as follows:

At the present time the term "antihormones" is most commonly applied to certain substances of unknown origin which appear in the serum of animals treated for long periods with certain anterior pituitary extracts, which apparently explain the observed gradual loss of responsiveness to such extracts and which are capable of making other animals, previously untreated, refractory to treatment with similar extracts. The demonstration of an antihormone of this type thus involves, at least three groups of animals: first, those from which the original anterior pituitary extract is prepared; second, those to which this extract is administered until they become refractory to it and the antihormone is present in their serum; third, those to which the serum is administered and which then show partial or complete inhibition of their usual response to an anterior pituitary extract identical with or similar to that used in the first place. Extracts from endocrine organs other than the anterior lobe of the pituitary may also be found to decrease in efficacy when administered over long periods, and in one or two instances the serum of the treated animals may acquire inhibitory properties and be said to contain an antihormone. Various modifications of this term have been used in other senses as well.

They then reviewed the literature to date. Since then several additional articles have appeared.³⁹

A review of this literature permits of two generalizations. First, that there are practically no instances of the development of antihormones following the administration of any hormones except those of the anterior lobe of the pituitary body. Antihormones do not follow the use of posterior pituitary extracts, thyroid extract or thyroxin, ovarian hormones, insulin and other similar preparations. Second, the development of antihormones further complicates the use of anterior pituitary extracts and seriously interferes with the effective use of such extracts. It is true that there is less antihormone effect with the more purified extracts, but there is always some. The development of antihormones constitutes the explanation for the failure of the hormones to be effective over a long period of time and explains the advice to give the extracts intermittently with a rest period between doses.

CONCLUSION

At the present time, disregarding "pituitary-like" preparations, it can be stated that there is little evidence that any extracts of the anterior lobe of the pituitary

body are suitable for the routine treatment of patients. The Council on Pharmacy and Chemistry has accepted no such preparation.⁴⁰ Detailed studies of the results of the clinical use of certain preparations of the anterior pituitary body should be continued by competent observers. The D'Amours⁴¹ have demonstrated that preparations of the anterior lobe purchased in drug-stores have little demonstrable activity. It should be unnecessary to add that none of the preparations that are advertised for oral administration have proved effective.

In preparing this summary an effort has been made to review articles in which the author has attempted to be critical of his results. There are too many articles in which pituitary preparations of unknown character have been administered to patients with undiagnosed conditions. It is interesting that I found no report of a case of postoperative pituitary insufficiency (the ideal test) in which benefit was obtained by treatment with anterior pituitary extract alone. Attempts to treat pituitary cachexia⁴² have not been very encouraging. It is difficult to know the number of cases of so-called pituitary cachexia in which the condition was not really anorexia nervosa. Patients suffering from pituitary insufficiency may respond to treatment with nonpituitary ("end organ") hormones, such as testosterone propionate and desoxycorticosterone acetate. Improvement has been reported following the use of chorionic hormone.⁴³ The relationship of anterior pituitary preparations to the development of tumors is being studied.⁴⁴

The future may hold great promise, but even this is questionable. The anterior lobe of the pituitary body of a huge bull is still a small amount of tissue. Laboratories engaged in research often have difficulty obtaining enough glands for their experimental study. Even if active preparations could be prepared, free from antihormone effect, there still is doubt if enough could be furnished for extensive clinical use. There is the possibility that a very small amount of a purified hormone of the anterior lobe of the pituitary body might be more effective than larger amounts of the present unpurified extracts. No chemist has yet succeeded in synthesizing a protein substance. It should be remarked that this, in itself, is not a fundamental objection since insulin, a protein, is a very satisfactory hormone. Nothing is impossible, but the picture in 1944 is not very encouraging. It is to be hoped that a review in 1954 may present a different picture.

38. Thompson, K. W.: Antihormones, *Physiol. Rev.* **21**: 588-631 (Oct.) 1941. Thomson, D. L.; Collip, J. B., and Selye, H.: The Antihormones, in *Glandular Physiology and Therapy*, pp. 101-114.

39. Rowlands, I. W., and Spence, A. W.: Production of Antigonadotropic Activity in Man by Injection of Extract of Pregnant Mare's Serum, *Brit. M. J.* **2**: 947-950 (Nov. 11) 1939. Zondek, B., and Sulman, F.: The Antigonadotropic Factor with Consideration of the Antihormone Problem, Baltimore, Williams & Wilkins Company, 1942. Jailer, J. W., and Leatham, J. H.: Anti-Gonadotropic Substances in Man Following Treatment with Pregnant Mare Serum, *Proc. Soc. Exper. Biol. & Med.* **45**: 506-508 (Oct.) 1940. Gordon, A. S.; Kleinberg, W., and Charipper, H. A.: The Reticulo-Endothelial System and Hormone Refractoriness, *J. Exper. Med.* **70**: 333-346 (Oct.) 1939. Gordon, A. S.; Levenstein, I., and Charipper, H. A.: Influence of Age of Animal and Nature of Injected Hormone Preparation on Antihormone Production, *Proc. Soc. Exper. Biol. & Med.* **42**: 121-126 (Oct.) 1939. Gordon, A. S.: Antihormone Production to Crude and Purified Pregnant Mare Serum Preparations, *Endocrinology* **29**: 35-40 (July) 1941. Bischoff, F., and Clarke, G. J.: Gonadotropic Antagonism in Mature Rats, *ibid.* **29**: 163 (July) 1941. Bischoff, F., and Ingraham, L. P.: Influence of Antagonism Phenomenon on Mammary Gland Development, *ibid.* **31**: 326-328 (Sept.) 1942. Leatham, J. H., and Abarbanel, A. R.: Purification of Equine Gonadotropin and Its Effect on the Appearance of Antigonadotropic Substances in Human Sera, *J. Clin. Endocrinol.* **3**: 206-211 (April) 1943.

40. Freed, S. C.: Present Status of Commercial Endocrine Preparations, in *Glandular Physiology and Therapy: A Symposium Prepared Under the Auspices of the Council on Pharmacy and Chemistry of the American Medical Association*, Chicago, American Medical Association Press, 1942, pp. 537-558.

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43. Mogensen, E.: Three Cases of Simmonds' Syndrome, with Special Reference to Clinical Diagnosis and Hormone Treatment, *Acta med. Scandinav.* **105**: 378-394, 1940.

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CLINICAL USE OF EXTRACTS FROM
ADRENAL CORTEXAND OF SYNTHETIC PRODUCTS HAVING
SIMILAR ACTIONS

GEORGE W. THORN, M.D.

BALTIMORE

It is apparent that strikingly beneficial effects from adrenal cortical hormone therapy may be anticipated with certainty only in those patients who present conclusive evidence of adrenal cortical insufficiency. Thus far despite numerous studies in patients with extensive burns, infections and surgical shock only five clinical conditions definitely associated with adrenal insufficiency are well established: (1) Addison's disease, (2) chronic adrenal cortical insufficiency without characteristic changes in pigmentation, (3) pituitary myxedema, (4) Waterhouse-Friderichsen syndrome and (5) acute adrenal cortical insufficiency precipitated by surgical removal of adrenal tissue.

ADRENAL CORTICAL HORMONE

Physiologic Considerations.—It is now recognized that adrenal cortical hormone plays an important role in the regulation of (a) sodium chloride, potassium and water distribution in the body, (b) carbohydrate metabolism and (c) pigment metabolism. Sodium, chloride, potassium and water distribution in the body is affected by the action of adrenal cortical hormone on the reabsorption of these elements by the kidney tubule.¹ Thus, in the absence of adrenal hormone, sodium, chloride and water are lost in excess in the urine and potassium is retained in the body.² Ultimately this results in striking dehydration and reduction in blood plasma volume with attendant hemoconcentration. Administration of adequate quantities of potent adrenal cortical hormone results in increased tubular reabsorption of sodium, chloride and water and in increased renal excretion of potassium.³ Plasma volume is restored, dehydration is corrected and normal concentrations of sodium, chloride and potassium are attained throughout the body.

Preservation of glycogen stores in the body and the maintenance of an adequate blood sugar level under fasting conditions are also aided by adrenal cortical hormone secretion. In normal subjects under conditions of starvation, carbohydrate stores are readily replaced by conversion of body protein to dextrose and glycogen. In the absence of adrenal cortical hormone this conversion takes place at a much slower rate, and body function may be impaired because of inadequate glycogen reserves.⁴ Hypoglycemia may develop follow-

ing a very short fast. In addition it can be shown that patients with adrenal cortical deficiency have a decreased rate of absorption of dextrose from the gastrointestinal tract, an apparent preference for burning carbohydrate and a lowered threshold at which signs and symptoms of hypoglycemia become evident.⁵ Administration of adequate quantities of potent adrenal cortical hormone increases glycogen reserves, restores blood sugar level, lowers the fasting respiratory quotient, increases intestinal absorption of dextrose and corrects the lowered threshold at which signs and symptoms of hypoglycemia become evident.⁶

The majority of patients with Addison's disease (94 per cent) have increased pigmentation.⁷ The abnormal pigmentation observed in these patients is occasioned by a deposition of increased quantities of normal melanin in the layers of the skin and mucous membranes.⁸ The nature of the metabolic disturbance responsible for the increased deposits of normal pigment is not known, and there is as yet no convincing proof that any one of the hormone preparations now available is effective in correcting this abnormality completely. As plasma volume increases and as dehydration is corrected, patients appear distinctly lighter. This rather sudden and striking improvement in color should not be confused with actual changes in deposition of melanin.

It is probable that the hormone of the adrenal cortex exerts an effect on other body functions, including protein⁹ and fat metabolism, although convincing proof of the latter has not yet been presented.

Chemical Considerations.—That adrenal cortical hormone preparations vary both quantitatively and qualitatively in their physiologic effect on body processes is of interest chemically and of great importance clinically. Certain data are now available concerning the relationship between chemical configuration and physiologic activity (fig. 1). It can be readily seen that the adrenal steroid corticosterone with an oxygen atom in the C₃, C₁₁, C₂₀ and C₂₁ positions is effective in correcting both mineral and carbohydrate disturbances in metabolism. Removal of the oxygen atom at position C₁₁ (11-desoxycorticosterone) deprives the compound of its carbohydrate regulating activity but enhances its sodium and chloride retaining property. Addition of an oxygen atom at C₁₇ (17-hydroxycorticosterone) increases carbohydrate regulating potency and decreases sodium and chloride retaining capacity. Indeed this latter compound may actually induce sodium and chloride loss under certain circumstances.¹⁰ From a consideration of the preceding facts it is apparent that satisfactory regulation of sodium, chloride and carbohydrate metabolism in patients with adrenal cortical deficiency may be obtained by the administration of either corticosterone alone or an appropriate mixture of 11-desoxycorticosterone (sodium and chloride retaining) and 17-hydroxycorticosterone, compound E, Kendall (carbohydrate regulating).

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6. Lewis, R. A.; Kuhlman, D.; Delbuc, C.; Koepf, G. F., and Thorn, G. W.: The Effect of the Adrenal Cortex on Carbohydrate Metabolism, *Endocrinology* **27**: 971, 1940. Thorn, Koepf, Lewis and Olsen.⁵

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8. Rowntree, L. G., and Snell, A. M.: A Clinical Study of Addison's Disease, Philadelphia, W. B. Saunders Company, 1931.

9. Long, C. N. H.; Katzin, B., and Fry, E. G.: The Adrenal Cortex and Carbohydrate Metabolism, *Endocrinology* **26**: 309, 1940.

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Since Reichstein¹¹ recently has succeeded in preparing steroid compounds with an oxygen atom on C₁₁ position, it should be only a relatively short time before such substances as corticosterone and 17-hydroxycorticosterone (compound E) are made available for clinical use.

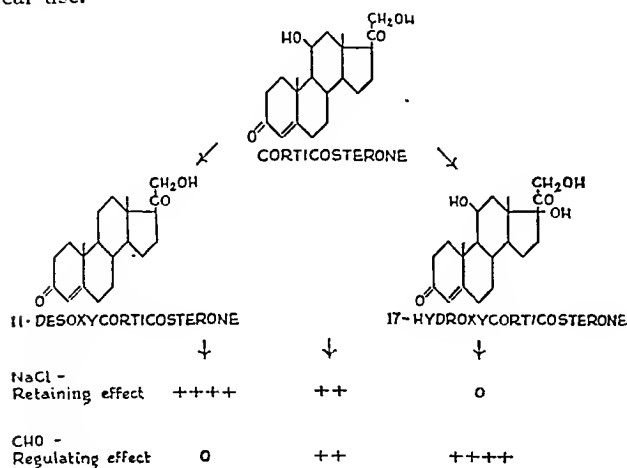


Fig. 1.—Adrenal steroids: relationship of chemical configuration to physiologic activity.

It appears that the activity of potent adrenal cortex extracts derived from natural sources (adrenal glands) is due to the presence in these extracts of a mixture of several of the adrenal steroid compounds.¹² It is obvious that commercially available extracts may vary widely in their content of the several active constituents, and hence the activity of these preparations is unpredictable unless they are standardized against known quantities of crystalline hormone. Thus far no adrenal cortical extract available commercially is so standardized. Recently, however, the Upjohn Company has made available for limited clinical investigation an extract of adrenal cortex dissolved in oil and standardized against corticosterone and 17-hydroxycorticosterone. It is hoped that other extracts may ultimately be similarly standardized.

Because of the lack of standardization of extracts derived from natural sources and because of the high cost of these extracts, the only crystalline adrenal hormone preparation, synthetic desoxycorticosterone, which is available commercially has received wide clinical trial. This preparation is very potent in its sodium and chloride retaining effect; it is lacking, however, in "carbohydrate regulating" power (fig. 1).

Desoxycorticosterone Acetate.—The complications¹³ which have arisen in conjunction with the use of desoxycorticosterone acetate have largely been the result of failure to appreciate the very potent sodium and chloride retaining effect of this compound and its inability to correct the fundamental disturbance in carbohydrate metabolism.⁵

ADRENAL CORTICAL INSUFFICIENCY

Diagnosis.—I. Addison's Disease and Chronic Adrenal Insufficiency: These two conditions are synonymous with the exception that classic cases of Addi-

son's disease in general represent a more severe or more advanced form of deficiency and present typical changes in pigmentation in addition to the usual signs and symptoms indicative of adrenal insufficiency (table 1). Of particular aid in diagnosis are (1) the presence of weakness and fatigability, (2) weight loss, (3) hypotension, (4) a heart smaller than normal and (5) increasing pigmentation. Five types of abnormal pigmentation are frequently observed in patients with Addison's disease:

1. Bluish black discoloration on lips, on gums and on buccal, rectal and vaginal surfaces.
2. A diffuse tan over the nonexposed as well as the exposed portions of the body.
3. Hyperpigmentation of extensor surfaces of the body, pressure points, scars and so on.
4. Multiple black freckles, especially on the forehead, face, neck, shoulders and arms.
5. Areas of vitiligo.

Weight loss is uniformly present in patients with advancing adrenal cortical insufficiency. Hypotension depends to some extent on the level of blood pressure prior to the onset of adrenal insufficiency. Thus, not infrequently, blood pressure is observed within normal range, owing to the fact that the patient actually had a moderate degree of hypertension antedating the onset of the deficiency. A teleoroentgenogram with measurement of the heart size is of great value in diagnosis; I have never encountered an uncomplicated case of advancing adrenal cortical insufficiency in which the heart size exceeded the predicted normal for height and weight of the patient.¹⁴ The basal metabolic rate of patients with adrenal cortical deficiency ranges between —10 per cent and —20 per cent. Values lower than —20 per cent usually indicate associated thyroid or anterior pituitary deficiency (see pituitary myxedema). Since approximately 50 per cent of all patients with Addison's disease have tuberculosis of the adrenals as the etiologic factor responsible for the disease, the demonstration of healed or active tuberculosis greatly increases the probability of the diagnosis, particularly if urogenital tuberculosis is present. Normal values for 17-ketosteroid excretion are of great value in elimi-

TABLE 1.—Signs and Symptoms Associated with Adrenal Cortical Insufficiency

1. Weakness and fatigability
2. Loss of weight
3. Increasing pigmentation
4. Hypotension
5. Anorexia, nausea or vomiting
6. Heart size less than predicted normal
7. Hypometabolism
8. Presence of healed or active tuberculosis
9. Decreased 17-ketosteroid excretion
10. Decreased serum sodium and chloride concentration
11. Characteristic response to Kepler-Power water test
12. Hypoglycemia following intravenous administration of dextrose
13. Characteristic response to hormone therapy

nating the diagnosis of Addison's disease. Low values, although characteristic of adrenal cortical insufficiency, are not specific, particularly for patients who are eating poorly and are undernourished. Low serum sodium and chloride values are rarely encountered except in patients with far advanced deficiency nearing a crisis. The response to the Kepler-Power water test is

14. Ungerleider, H. E., and Clark, C. P.: Study of Transverse Diameter of the Heart Silhouette with Prediction Table Based on the Teleoroentgenogram. *Am. Heart J.* 17: 92, 1939.

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extremely helpful; again, a normal response is of great value in eliminating adrenal cortical insufficiency. Hypoglycemia can frequently be induced by the intravenous administration of dextrose to patients with well advanced adrenal cortical insufficiency.¹⁵ Finally, the response to specific hormone therapy, with appropriate control periods during which hormone therapy is discontinued, is of great value. Patients should show a striking increase in weight and blood pressure, the latter returning toward normal much more slowly than the former. The Wilder test (sodium chloride withdrawal in the presence of added potassium) is a very severe test with great danger to many patients. I never employ this test when the diagnosis of Addison's disease is fairly apparent. It is an extremely useful test to employ for patients whose weakness and fatigability appear to have no obvious organic basis.

II. Pituitary Myxedema: Means¹⁶ and Williams¹⁷ have clearly shown that certain patients with myxedema, on receiving adequate thyroid medication, develop signs and symptoms indicative of adrenal insufficiency. Prophylactic therapy with adrenal cortical hormone and sodium chloride prevents the development of insufficiency and permits patients to tolerate adequate doses of thyroid hormone. These patients have a characteristic facies¹⁸ and their basal metabolic level (-25 to -45 per cent) is considerably below that which occurs in uncomplicated chronic adrenal cortical insufficiency. Blood cholesterol may be elevated and hypogonadism is frequently present. Failure to recognize the underlying adrenal cortical insufficiency in these patients with thyroid and pituitary insufficiency may result in a catastrophe when thyroid hormone is administered.

III. Waterhouse-Friderichsen Syndrome: Acute collapse associated with bilateral hemorrhage into the adrenals is a clinical syndrome occasionally encountered in severe septicemia—especially meningococcemia and staphylococcemia. It rarely occurs in the absence of evidence of rather severe, generalized hemorrhagic manifestations. This syndrome may be confused with collapse resulting from the toxemia of overwhelming infection. Recently Thomas,¹⁹ in reporting an epidemic of meningococcal infection in troops, noted that hemorrhages into the adrenals were present in 17 of 23 fatal cases in which autopsy was performed. The diagnosis of Waterhouse-Friderichsen syndrome was suspected in many of these patients. It is obvious that large quantities of hormone must be given quickly if any hope of success is to be entertained.

IV. Acute Adrenal Cortical Insufficiency Associated with Surgery of the Adrenals: Removal of an adrenal tumor and operative procedures designed to reduce the quantity of functioning adrenal cortical tissue not infrequently precipitate acute adrenal cortical insufficiency. Evidences of an inadequate supply of hormone develop most commonly within the twenty-four to twenty-eight hours following operation. In contrast, acute adrenal medullary insufficiency following the removal of a pheochromocytoma for hypertension manifests itself instantaneously.

15. Lewis, Kuhlman, Delbue, Koepf and Thorn.⁹ Thorn, Dorrance and Day.⁵

16. Means, J. H.; Hertz, S., and Lerman, J.: The Pituitary Type of Myxedema or Simmonds' Disease Masquerading as Myxedema, *Tr. A. Am. Physicians* 55: 32, 1940.

17. Williams, R. H., and Whittenberger, J. L.: Treatment of Simmonds' Disease, *J. Clin. Endocrinol.* 2: 539, 1942.

18. Means, Hertz and Lerman.¹⁶ Williams and Whittenberger.¹⁷

19. Thomas, Henry M., Jr.: Meningococcal Meningitis and Septicemia: Report of Outbreak in Fourth Service Command During Winter and Spring of 1942-1943, *J. A. M. A.* 123: 264 (Oct. 2) 1943.

ADRENAL CORTICAL HORMONE

*Preparations.*²⁰—I. Adrenal Cortical Extracts: An extract of fresh beef adrenals constitutes the basis of the majority of preparations now available commercially. Extracts for oral use should never be relied on in the treatment of patients with adrenal cortical insufficiency. Most of the commercial extracts are designed for subcutaneous, intramuscular and intravenous use. The extracts are standardized biologically (e. g., adrenalectomized rat growth curve); in other instances the corresponding quantity of fresh adrenal gland (i. e. 1 cc. of extract = 40 Gm. of fresh gland) is the basis for standardization. In no instances are commercially available extracts assayed for their content of crystalline hormone against known quantities of crystalline adrenal steroids. Since the widely used commercial extracts, i. e. Parke, Davis, Roche-Organon, Upjohn and Wilson, are not standardized against crystalline hormone preparations, it is impossible to compare their potency accurately, and it is impossible to be certain that succeeding batches of extract from any one pharmaceutical house are equivalent in all respects. From my own clinical studies it appears that Parke, Davis's Eschatin, Upjohn's aqueous adrenal cortex extract and Wilson's adrenal cortex extract are approximately equivalent on a cubic centimeter basis. At least one notes no remarkable change in clinical condition on alternating any of these three preparations.

Adrenal cortex extract may be given intravenously in an emergency. However, this is not a satisfactory method for continued administration. Extracts are usually administered into the deep subcutaneous tissues, and since the maximum action following a single injection is four to six hours, optimum effect is obtained by dividing the daily dose and, if possible, administering extract subcutaneously every six to eight hours. Correspondingly larger doses of extract are required if the total twenty-four hour dose is given at one time. Most patients with severe adrenal cortical insufficiency, if maintained on adrenal extract, will require 20 to 30 cc. daily; if supplementary sodium chloride is given, 10 to 20 cc. daily may be adequate.²¹ Since no overdosage phenomena have ever been observed following the administration of adrenal cortex extracts, the quantity employed is determined by (a) the cost of the preparation (10 to 30 cc. per day costs approximately \$3 to \$10 daily), (b) the willingness of the patient to take repeated daily injections regularly and (c) the concentration and the nature of the preservative employed when large quantities of extract are administered for prolonged periods.

Again, it should be pointed out that, although the potency of available extracts is relatively low, the

20 Excerpt from a report of the Council on Pharmacy and Chemistry (*J. A. M. A.* 123: 351 (Oct. 9) 1943):

ADRENAL CORTEX EXTRACT

Source: Adrenal gland of animals. Assay: Biologic units (1 cc. of extract is derived from 40 Gm. of fresh gland).

PRODUCT AND FIRM

Adrenal Cortex Extract. Upjohn.
Adrenal Cortex Extract. Wilson Laboratories.
Eschatin. Parke, Davis.

DESONOCORTICOSTERONE ACETATE

Source: Synthetic. Assay: Weight.

PRODUCT AND FIRM

Cortate. Schering.
Doca. Roche-Organon.
Percorten. Ciba.

21. Thompson, W. O.: Addison's Disease: Recent Contributions to Treatment, *J. Michigan M. Soc.* 39: 648, 1940.

extracts are effective in regulating both mineral and carbohydrate metabolism when administered in adequate quantities. Furthermore, there is as yet no evidence of toxic overdosage phenomena.

II. Crystalline Adrenal Cortical Hormone preparations: All crystalline hormone preparations now available commercially are composed of one and the same substance; i. e., synthetic desoxycorticosterone acetate. This is prepared in oil solution (1 cc. = 5 mg. of crystalline hormone): Ciba Pharmaceutical Products, Inc., Percorten; Roche-Organon, Inc., Doca; Schering Corporation, Cortate. In addition, 125 mg. pellets of crystalline hormone (Ciba-Percorten) are available commercially for subcutaneous implantation. Desoxycorticosterone acetate has been prepared in propylene glycol and as tablets for sublingual use. However, neither of these preparations is available commercially at present. The hormone requirement when administered sublingually is at least three times as great as the dose when injected intramuscularly.²²

Because the commercially available preparations of desoxycorticosterone acetate are composed of crystalline hormone, standardization is simple. The only essential difference between the several commercial preparations in oil is the type of oil used. This requires some consideration, since patients occasionally may become sensitive to the oil in which the hormone is dissolved.²³

Desoxycorticosterone acetate exerts a very potent sodium and chloride retaining effect and, as has been previously mentioned, is lacking in the carbohydrate regulating factor. Excessive salt and water retention represents a real danger to patients given large quantities of synthetic desoxycorticosterone acetate, since hypertension, cardiac enlargement and pulmonary edema may occur.¹³ At the same time hypoglycemia may also be observed if for any reason patients under treatment with desoxycorticosterone acetate fail to eat regularly. Thus the problem in desoxycorticosterone acetate therapy is to provide an adequate quantity of hormone, to prevent excessive retention of sodium and chloride and to provide for a liberal carbohydrate intake. In the presence of nausea, vomiting or infection, supplementary adrenal cortical extract (in relatively large doses) must be given.

Pellets of synthetic desoxycorticosterone acetate may be implanted as an effective substitution for daily injection of the hormone in oil. If the daily hormone requirement has been accurately determined, the required number of pellets can be estimated easily. One pellet (125 mg.) should be implanted for each 0.5 mg. of hormone required daily. Example: A patient requiring 2.5 mg. of hormone in oil daily would need five pellets. Pellets (125 mg. of Percorten—standardized) will provide a continuous source of hormone for nine to fifteen months.⁷ Patients should never receive pellets until their daily hormone requirement has been carefully established. Implantation is easily accomplished under local anesthesia. An incision is made and the pellets are implanted directly or through a trocar. In either event the pellets should be placed at least 2 cm. from the line of the incision to prevent extrusion.

CLINICAL USE OF ADRENAL CORTICAL HORMONE PREPARATIONS

I. *Treatment of Adrenal Crisis.*—Impending or actual adrenal crisis represents the most urgent need for hormone and supplementary therapy. A crisis may occur in patients with Addison's disease or chronic adrenal insufficiency as the result of intercurrent infections, in patients with "pituitary myxedema" following the institution of thyroid therapy, in septicemia as described under the Waterhouse-Friderichsen syndrome¹⁹ or following surgery on the adrenals. The principle of treatment in all instances is the same: Massive therapy must be given quickly. In the presence of infection, specific chemotherapy is given in addition. The aims of therapy may be summarized as follows:

1. Support of plasma volume and blood pressure by:
 - (a) Intravenous infusion of sodium chloride (0.9 per cent solution) and dextrose (5 to 10 per cent solution).
 - (b) Aqueous adrenal cortex extract (intravenously and subcutaneously) in large quantities.
 - (c) Synthetic desoxycorticosterone acetate in oil (intramuscularly).
 - (d) Epinephrine in oil (0.5 cc.) intramuscularly if systolic blood pressure falls below 90 mm. of mercury.
2. Prevention of hypoglycemia:
 - (a) Infusions of dextrose and saline solution in conjunction with adrenal cortex extract.
 - (b) Frequent feedings of readily available carbohydrate as soon as tolerated.
 - (c) Large quantities of adrenal cortex extract (1 b).
3. Antibacterial chemotherapy whenever indicated.
4. Plasma and whole blood transfusions if other measures fail to support the circulation.

Suggested Outline of Therapy.—1. The patient is kept quietly in bed and is immediately given an intravenous infusion of 1,000 to 1,500 cc. of sodium chloride 0.9 per cent and dextrose 5 to 10 per cent. All unnecessary examinations are deferred. Morphine is contraindicated. A second infusion of saline solution and dextrose is repeated in six to twelve hours and subsequently at least once daily until the temperature has reached normal and the patient is taking fluids and eating well.

2. Twenty-five cc. of aqueous adrenal cortex extract is added to the first intravenous infusion and in addition 10 cc. of extract is injected subcutaneously. The subcutaneous injection of 5 to 10 cc. of aqueous extract (Parke, Davis, Roche-Organon, Upjohn or Wilson) is repeated every two to four hours until fever subsides, then every four to eight hours until the patient is eating well.

3. Twenty mg. of desoxycorticosterone acetate in oil is injected intramuscularly in divided doses immediately; and thereafter 5 to 10 mg. is given once daily depending on blood pressure, quantity of saline solution which has been administered, appearance of excessive fluid retention and other factors.

4. One cc. of epinephrine in oil injected intramuscularly or 0.5 cc. epinephrine (aqueous) is indicated if the level of systolic blood pressure falls below 90 mm. of mercury.

5. Blood pressure determinations are made at intervals of one to two hours, day and night. Small quantities of fruit juice with added lactose or ginger ale are given at frequent intervals if tolerated. Since 1,500 cc. of saline and dextrose solution is given intravenously at eight to twelve hour intervals, additional fluid or sodium chloride by mouth is not essential during the first

22. Thorn, G. W.; Greif, R. L.; Coutinho, S. O., and Eisenberg, H.: Relative Effectiveness of Several Methods of Administering Desoxycorticosterone Acetate. *J. Clin. Endocrinol.* 1: 967, 1941.

23. Thorn, G. W.; Howard, R. P., and Emerson, K. Jr.: Treatment of Addison's Disease with Desoxycorticosterone Acetate, a Synthetic Adrenal Cortical Hormone (Preliminary Report), *J. Clin. Investigation* 18: 449, 1939.

twenty-four hours of treatment. A fall in blood pressure without signs of excessive sodium chloride and water retention is a definite indication for increasing the infusions of sodium chloride and for giving additional desoxycorticosterone acetate intramuscularly (5 to 10 mg.). A fall in blood pressure in the presence

TABLE 2.—Daily Hormone Requirement of Synthetic Desoxycorticosterone Acetate in Sesame Oil: 141 Patients with Addison's Disease*

Daily Dose of Hormone, Mg.	Number of Patients	Per Cent of Total
0-3.....	73	51
3-5.....	66	40
5-10.....	8	6
10+.....	4	3

* Patients were given 3 mg. of sodium chloride daily in addition to unrestricted sodium chloride in diet.

of excessive sodium chloride and water retention is a definite indication for reducing the number of infusions, for discontinuing the desoxycorticosterone acetate therapy and for increasing the quantity of adrenal cortex extract, i. e. 10 cc. every hour. At this time a plasma transfusion should be seriously considered.

II. Treatment of Addison's Disease and Chronic Adrenal Insufficiency.—A small proportion of patients with Addison's disease or chronic adrenal insufficiency may be maintained in relatively good health by means of sodium chloride therapy alone. However, it is my opinion that, once the diagnosis of adrenal insufficiency is well established, patients are better off if they are being maintained with supplementary hormone. A few patients will be able to afford adrenal cortex extract and, if willing, can be maintained in good condition with 15 to 20 cc. of extract daily, preferably given in divided doses every eight hours.²¹ Any one of the adrenal cortical extracts available for parenteral use is satisfactory. It is usually helpful to give additional sodium chloride 3 to 6 Gm. (1 Gm. enteric coated sodium chloride tablets) daily. In the presence of infection or any other complications it is desirable to supplement extract therapy with daily injections of synthetic desoxycorticosterone acetate.

For practical purposes most patients will be treated with desoxycorticosterone acetate; this form of therapy may be supplemented during the course of intercurrent infections with supplementary adrenal cortex extract. As is the case with extract, the requirement of desoxycorticosterone acetate may be reduced significantly by the addition of supplementary sodium chloride medication. However, in this case, because of its very potent sodium and chloride retaining effect, the use of sodium chloride must be watched with extreme care. In fact, some clinicians prefer not to use sodium chloride in conjunction with desoxycorticosterone acetate. All agree that only small quantities of sodium chloride should be administered.

The daily desoxycorticosterone acetate requirement of over 90 per cent of patients with Addison's disease is 5 mg. or less when 3 Gm. of supplementary sodium chloride medication is employed (table 2). It is my practice to begin therapy with 2.5 mg. of desoxycorticosterone acetate injected once daily and a 1 Gm. tablet of sodium chloride (enteric coated) three times daily with meals. The weight, blood pressure and clinical state should be watched carefully. If treatment is adequate, weight gain will occur at once. If no gain in weight occurs after three days of therapy, the dose of hormone

should be increased to 3.5 to 4.0 mg. daily. If weight gain exceeds 0.5 Kg. daily, the dose of hormone should be reduced. The appearance of puffiness under the eyes or edema of the ankles or other parts of the body is a definite indication for reducing the quantity of hormone despite the patient's clinical state. Blood pressure may rise quickly from very low levels, but it may require weeks for the blood pressure to attain a normal level. All patients should have a roentgenogram of the heart, and, if possible, heart size should be followed carefully during the first few months of therapy. Patients usually feel much improved after the first week or two of therapy. When weight gain is rapid or edema appears the dose of desoxycorticosterone acetate must be reduced to avoid serious consequences. Infections increase the hormone requirement, and occasionally the first indication of an active tuberculous process is a rising hormone requirement. In this respect adrenal cortical hormone therapy is similar to insulin in the care of diabetic patients. As is so commonly the case in diabetes, the hormone requirement may decrease considerably after treatment has been continued for some period.

The desirability of implanting pellets of crystalline hormone may be considered after a patient has been maintained in good condition on a constant daily dose of hormone in oil for a period of two to three months. At present the only standardized pellets available commercially are Percorten pellets prepared by the Ciba Pharmaceutical Products, Inc. For these particular pellets (125 mg. each) it has been determined that one pellet implanted subcutaneously will substitute successfully for 0.5 mg. of hormone injected once daily. It is obvious that these figures do not necessarily hold for pellets prepared by other methods or other pharmaceutical houses. In all instances 3 Gm. of sodium chloride medication was given daily during the period of hormone therapy prior to the implantation of pellets. The supplementary sodium chloride provides a balancing mechanism which can be used after pellets are implanted to compensate for any temporary excess of hormone.

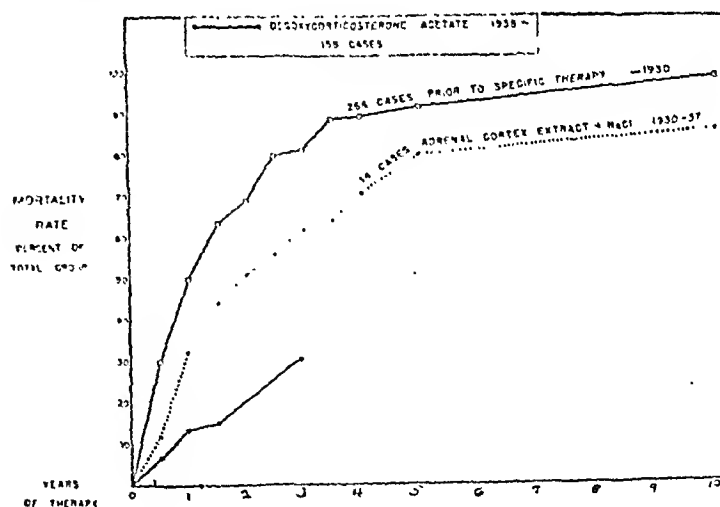


Fig. 2.—Mortality rate in Addison's disease.

Pellets weighing 125 mg. each provide effective therapy in most patients for a period of at least twelve months. The fact that pellets are no longer providing an adequate supply of hormone is first indicated in most instances by a gradual reduction in blood pressure. Later fatigue and loss of weight and appetite are observed. In most instances, however, as soon as the reduction in blood pressure is noted, without awaiting the further development of symptoms of adrenal insuffi-

ciency, the patient is given intramuscular injections of hormone. One injection of 2 to 5 mg. (0.4 to 1.0 cc.) of desoxycorticosterone acetate twice weekly is adequate for most patients at this time. Later daily injections of the hormone are resumed and a new assay is conducted. Three Gm. of sodium chloride daily is administered during this new assay period. When the maintenance hormone requirement has again been ascertained, and when it is certain that little, if any, of the original pellets remain, new pellets are implanted. New pellets of desoxycorticosterone are never implanted arbitrarily at the end of one year, on the basis of the original assay for two reasons: 1. Patients' hormone requirement may change considerably during a year of sustained therapy. 2. In many patients at the end of twelve months there is still an appreciable quantity of hormone which is being absorbed from the original pellets and which would lead to overdosage if supplemented by a full complement of new pellets. In most patients supplementary injections of hormone in oil are not required during the first twelve months subsequent to the initial pellet implantation.

Technic of Pellet Implantation: The infrascapular region posteriorly is usually selected for pellet implantation. Strict asepsis is observed. The operative field is prepared with iodine and alcohol and the site of incision is infiltrated with procaine, 1:200 solution. A transverse incision 2 to 4 cm. in length is made a few centimeters below the inferior spine of the scapula. With blunt dissection a number of small pockets, 2 to 3 cm. in depth, are prepared in the subcutaneous tissues. The opening of each pocket is held far enough apart by a nasal dilator to permit pellets to be dropped gently to the bottom of the pocket without the use of force. This is important, for if the opening into the pocket is too small the fragile pellet can easily be crushed by the force used to insert it; furthermore, if the pocket is not deep enough the pellet may be extruded subsequently through the incision. The wound is closed with subcuticular stitches of fine black silk. It is possible to insert as many as ten to fifteen pellets through a single incision. Di Maio²⁴ has recently described a modification of this technic which has the advantage of a smaller incision. A trocar is employed to implant the pellets in a row at some distance from the margin of the incision.

Results of Treatment and Prognosis: At present most patients with Addison's disease can be maintained in relatively good condition with appropriate dosage of desoxycorticosterone acetate supplemented with adrenal cortex extract in emergencies. Patients with active tuberculosis obviously have a poor prognosis. With all other patients the constant danger of intercurrent infections must be borne in mind. The results of therapy in a group of 158 patients with Addison's disease who have been followed for an average period of three years are presented in figure 2. All these patients received desoxycorticosterone acetate therapy, and, in 148, pellets of crystalline desoxycorticosterone acetate have been implanted subcutaneously. Adrenal cortex extract has been used in emergencies or crises induced by intercurrent infections. Five patients have received supplementary adrenal cortex extract (3 to 10 cc.) daily for long periods of time. Prior to 1930 the average duration of life expectancy was one to two years after the diagnosis of Addison's disease had been made, and at the end of three years 80 per cent of the

patients had succumbed. The figures for patients treated with adrenal cortex extract and sodium chloride (1930-1937) represent adequate treatment with sodium chloride, but obviously inadequate hormone was given. In the group of 158 patients who have been treated with desoxycorticosterone acetate⁷ supplemented with adrenal cortex extract in emergencies only 30 per cent had succumbed at the end of three years of therapy, in contrast to a figure of 80 per cent mortality in the same period prior to 1930.

It is probable that further great advances in therapy will be made when a synthetic adrenal steroid with an oxygen atom on C₁₁ becomes available for clinical use. Such a preparation should result in definite improvement in carbohydrate metabolism and in increased muscular efficiency.

THE CLINICAL USE OF EXTRACTS FROM THE TESTES

AND OF SYNTHETIC PRODUCTS HAVING
SIMILAR ACTIONS

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PHYSIOLOGY

The testis has two functions: (1) the production of spermatozoa by the seminiferous tubules and (2) the production of male sex hormone by the interstitial cells of Leydig. There may be some dissociation of these two functions. Thus an adult male with bilateral cryptorchism may show fairly normal sexual development but be sterile. In most instances, however, testes which do not produce spermatozoa produce deficient quantities of male sex hormone, and several observers¹ have presented evidence which suggests that the seminiferous tubules may contribute to the production of hormone. The sex hormones are responsible for the development of the secondary sex characteristics, which in the male include:²

1. Growth of the external genitalia.
2. Growth and function of the prostate.
3. Masculine distribution of hair.
4. Lowering of the pitch of the voice.
5. Normal configuration of the skeleton, with normal proportions between the trunk and extremities and between the shoulders and hips.
6. Increase in the size and firmness of the muscles.
7. Normal emotional reactions.

An intimate relationship exists between the anterior lobe of the pituitary and the gonads. The pituitary influences gonadal function by the production of gonadotropins and is in turn inhibited by male and female sex hormones which are secreted by the gonads. There are at least two gonadotropic effects of the pituitary which may be related to the production of distinct gonadotropic materials. One is follicle stimulating and causes the development of graafian follicles in the ovary and influences the function of the seminiferous tubules in the testis. The other is luteinizing and causes luteinization of the developing follicles in the ovary and stimu-

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lates the interstitial cells of the testis to produce male sex hormone. In most glands of internal secretion, states of hypofunction and hyperfunction are clearly defined. In the case of the testis, clearcut examples of hyperfunction have not been described. Hypofunction, however, is common and may be of two types:

1. Primary, resulting from castration, injury or disease; for example, the orchitis of mumps.
2. Secondary, usually the result of hypopituitarism.

In the same way, two types of treatment are possible:

1. Stimulation therapy with gonadotropins.
2. Substitution therapy with male sex hormone.

STIMULATION AND SUBSTITUTION THERAPY

Three types of gonadotropin are available for stimulation therapy:

1. Pituitary gonadotropin from the pituitary itself.
2. Equine gonadotropin from the serum of the pregnant mare.
3. Chorionic gonadotropin from the urine of pregnant women.

Pituitary and equine gonadotropin are theoretically desirable because they contain both follicle-stimulating and luteinizing material but in actual practice they are not very effective. Chorionic gonadotropin is very effective, although it has the disadvantage that it is luteinizing in nature and therefore influences primarily the production of male sex hormone and has little effect on spermatogenesis. It was isolated from the urine of pregnant women about sixteen years ago by Aschheim and Zondek³ and forms the basis of their test for pregnancy. It was originally called an anterior pituitary-like substance because it simulated the gonadotropic action of the pituitary. It was eventually given the name of chorionic gonadotropin because of its origin in the chorionic villi of the placenta. It is available under a variety of trade names: Follutein (Squibb), Korotrin (Winthrop), A. P. L. (Ayerst, McKenna & Harrison), Pranturon (Schering), Antuitrin-S (Parke, Davis), Pregnyl (Roche-Organon), Anterior Pituitary-like Gonadotropic Hormone (Lakeside Laboratories), Anterior Pituitary-like Sex Hormone (Hospital Liquids: U. S. Standard Products), Entomone (Endo Products), Gestasel (National Drug).

The most effective agent for substitution therapy is testosterone propionate. Although it was known from the experiments of Berthold⁴ in 1849 that the testis has an internal secretion, great difficulty was encountered in extracting it from the testis because so little is present at any one time. It is very active, quickly utilized and not stored in appreciable quantities in the testis or elsewhere. The hormone is a steroid and therefore not water soluble. In 1927 McGee⁵ obtained a potent extract from bull testes by using lipid solvents and assayed them by their influence on the comb of the capon, which still is the most valid method of assay. It has been estimated that 1 ton of testes contains only from 90 to 270 mg. of hormone. Shortly after the work of Aschheim and Zondek,³ a search was made for various hormones in urine and two androgenic substances, androsterone⁶ and dehydroandrosterone,⁷ were

found in human male urine. These materials were quickly identified and synthesized.⁸ It was soon found by Laqueur⁹ that concentrates from bull testes were from five to ten times as potent per units of weight as crystalline androsterone and that the two were different chemically. The discrepancy was explained in 1935, when David and his associates¹⁰ isolated a much more active androgen, testosterone, from the testis. This material was promptly synthesized from cholesterol by both Butenandt¹¹ and Ruzicka.¹² Testosterone is the most potent androgenic substance isolated thus far, and the true male sex hormone is thought to be some form of this material. Certain esters of testosterone are more potent than testosterone itself, and in clinical medicine testosterone propionate is most commonly used. Since the isolation of androsterone, dehydroandrosterone and testosterone, about forty related substances with male sex hormone characteristics have been prepared synthetically by the degradation of sterols, but these are not used clinically. For therapeutic purposes testosterone is made synthetically. Since it is a very potent substance of known composition, extracts of the testis have no place at present in treatment. Commercial preparations of testosterone propionate are Oreton (Schering), Perandren (Ciba) and Neo-Hombreol (Roche-Organon). This material is administered parenterally in oil. Recently methyl testosterone has been prepared, which possesses the advantage of being effective by mouth. It is less potent than testosterone propionate and is usually not used in the initial stages of therapy.

The treatment of hypogonadism in the male is therefore limited at the present time to the use of two substances, namely chorionic gonadotropin and some form of testosterone.

INDICATIONS FOR STIMULATION THERAPY (CHORIONIC GONADOTROPIN)

There are two main indications for stimulation therapy:

1. Undescended testes.
2. Hypogonadism secondary to hypopituitarism, including the Fröhlich syndrome.

Undescended Testes.—The testes may fail to descend because of some hormonal deficiency or because of some mechanical defect along the path of descent. In many patients in whom a hormonal deficiency is present the testes will descend at the time of puberty without treatment. Careful study of the data available¹³ indicates that glandular therapy causes the descent only of those testes which would descend at the time of puberty without treatment. However, it is felt that glandular

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12. Ruzicka, L., and Wettstein, A.: Ueber die künstliche Herstellung des Testikelhormons Testosteron, *Helvet. chim. acta* **18**: 1264, 1935.

13. Thompson, W. O., and Heckel, N. J.: Undescended Testes: Present Status of Glandular Therapy, *J. A. M. A.* **112**: 397 (Feb. 4) 1939; *Endocrine Treatment of Cryptorchism*, *ibid.* **117**: 1953 (Dec. 6) 1941.

therapy is very important in the treatment of this condition for the following reasons:

1. The testis cannot function properly except in the environment of the scrotum. There is every reason to believe that the earlier it is placed in its normal environment the greater its chance of normal function.

2. Glandular therapy makes it possible to determine at an early age whether or not there is some mechanical obstruction which prevents descent.

3. Even though glandular therapy may be ineffective in causing descent of the testis, it facilitates orchiopexy by enlarging the parts involved.

In our experience, most of the reports on glandular therapy in this condition are overenthusiastic. They show descent on the average in about 60 per cent of the cases, whereas our own data show descent in only about one fourth of the cases in boys under 16 years of age. The main reason for the discrepancy would appear to be failure on the part of many investigators to distinguish between true cryptorchism and pseudo-cryptorchism (migratory testes). In order to determine the true location of the testes, the patient must be examined in the upright position on at least two separate occasions. A migratory testis may sometimes retract into the abdominal cavity.

Chorionic gonadotropin and testosterone propionate are both effective in the treatment of this condition. Indeed, chorionic gonadotropin produces its effect by stimulating the testes to produce male sex hormone. Stimulation therapy is preferable whenever the testes can respond, because testosterone propionate temporarily damages the normal testis. It is indicated only when both testes are in the abdominal cavity and incapable of responding to stimulation. Even in bilateral intra-abdominal cryptorchism, definite stimulation of male sex hormone production may be produced by chorionic gonadotropin. It should therefore be used in all cases before resorting to substitution therapy.

The effective dose varies from patient to patient, but 500 international units three times a week is usually adequate. The treatment is continued until the testis descends or until it is obvious that surgical procedures are necessary. As a rule, when glandular therapy is effective the testis descends within two months, although it is sometimes necessary to continue the treatment for as long as six months. It is continued until the testis descends or until a moderate amount of genital growth is induced, without descent. Patients must be examined frequently in order to avoid excessive genital growth.¹⁴ If moderate growth occurs without descent, operative procedures should be resorted to immediately. If any delay ensues, the genitalia decrease in size and the operation becomes more difficult.

Chorionic gonadotropin may be effective in inducing descent as late as the age of 32 years, and descent has been noted with male sex hormone as late as the age of 60 years.

Hypogonadism Secondary to Hypopituitarism.—Hypogonadism is observed in chromophobe adenoma of the pituitary, Simmonds' disease and the Fröhlich syndrome, which is rarely associated with pituitary tumor. In extreme forms of hypopituitarism such as those seen in Simmonds' disease and in a few patients with chromophobe adenomas, there are other deficiencies besides hypogonadism which require treatment, notably hypothyroidism and hypoadrenalism. The effective

dose of chorionic gonadotropin varies from 500 to 1,000 international units three times a week. The criteria for the diagnosis of the Fröhlich syndrome are not clearly worked out. There is a group of young boys with excessive obesity and hypogonadism who do not undergo adequate sexual maturity. They are characterized by very small genitalia, fullness of the breasts, large pendulous abdomen with a transverse fold just above the pubic area, broad hips, large thighs, narrow shoulders and genu valgum. The basal metabolism is often depressed to a level of minus 20 to minus 25 per cent. The sella turcica is usually normal in size or somewhat small. They are usually normal in height or even slightly taller than the average, although the condition may be associated with dwarfism. Some individuals of this type show a remarkable change at the age of puberty and undergo a complete transformation without treatment. It is impossible at present to be certain in what patients spontaneous improvement will take place. The same type of change may be induced at an earlier age by the administration of chorionic gonadotropin. The obesity usually disappears and the body contour is completely altered. Adequate diagnostic criteria will be awaited with great interest. At present it is probably desirable to treat the more extreme forms of this condition because in such patients complete restoration to normal may not occur without treatment. Chorionic gonadotropin should be given in a dose of 500 international units three times a week, starting at the age of 11 or 12 years. The treatment should be continued until epiphyseal closure takes place. No harmful effects have been observed when the treatment has been carried out in this manner. When treatment is not started until after the age of normal puberty; it is not as effective and the skeletal contour cannot be changed appreciably. However, striking stimulation of testicular function has been observed as late as the age of 37 years, using a dose of 1,000 international units of chorionic gonadotropin three times a week.

INDICATIONS FOR SUBSTITUTION THERAPY (TESTOSTERONE PROPIONATE)

Treatment with male sex hormone is indicated in all cases of hypogonadism in which the testes cannot respond to stimulation,¹⁵ namely:

1. Primary hypogonadism, including:
 - (a) All cases of eunuchism.
 - (b) Most cases of eunuchoidism.
2. Secondary hypogonadism, when stimulation is ineffective. This applies to a few cases of the Fröhlich syndrome, chromophobe adenoma of the pituitary and pituitary dwarfism. However, stimulation therapy is effective and preferable in most of them.
3. Impotence from deficiency of the testes.
4. Male climacteric (?).

Treatment of Eunuchism and Eunuchoidism.—Three methods of treatment are employed:

1. Parenteral administration of testosterone propionate in a dose of 25 to 50 mg. three times a week.
2. Oral administration of methyl testosterone, 30 to 90 mg. daily.
3. Implantation of pellets of testosterone (total of about 1,000 mg.).

In order to induce maximum changes, it is usually necessary to use testosterone parenterally, although methyl testosterone may prove to be satisfactory for

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maintenance therapy once these changes are induced. Since methyl testosterone is effective orally, the implantation of pellets is rarely resorted to. Large doses are continued until maximum effects are produced. This usually takes from one to two years. Regression is then prevented by administration of a smaller maintenance dose for the rest of the patient's life.

Eunuchoidism is commonly but not necessarily associated with bilateral intra-abdominal cryptorchism. The testes may be in the scrotum but are atrophic and secrete very little male sex hormone. When the condition is extreme, it is characterized by infantile genitalia, lack of muscular development, high pitched voice, lack of hair on the body and face and skeletal disproportions, with a short trunk and long extremities. The shoulders are usually narrow and the hips slightly broad. Epiphyseal union is usually delayed. Patients suffering from this condition often attain normal height or may be slightly taller than the average. Obesity of the girdle type may be present, with some fullness of the breasts, although the majority of eunuchoid individuals are not overweight. When testicular function is lost after normal sexual function has occurred, the changes are much less striking. There is some atrophy of the genitalia, some loss of body hair and a slight change in the pitch of the voice. Obesity may or may not be present. Ease of fatigue is very common and various psychic and neurologic disturbances are noted, including depression, lack of confidence, inability to perform sustained mental work and hot flashes.

In eunuchs and eunuchoid men who are completely undeveloped sexually, the administration of adequate doses of testosterone propionate will produce the following changes:

1. The appearance of the secondary sex characteristics of the normal adult male. These include development of the penis, scrotum, seminal vesicles and prostate, development of the musculature, lowering of the pitch of the voice, growth of hair in the pubic and axillary regions, on the face, abdomen, chest, arms and legs, and the onset of erections and seminal emissions.

2. Increase in appetite, weight and strength. During the administration of from 25 to 50 mg. three times a week, such individuals usually gain from 25 to 40 pounds (11 to 18 Kg.) in the course of about four months. They do not become obese. The increased weight is well distributed and is explained in part by the development of the musculature of the body, which takes on masculine characteristics in contrast to the undeveloped feminine type of musculature seen in the eunuchoid state. It should be pointed out that the male sex hormone causes retention of nitrogen, water, sodium and chloride.

3. An increase in vigor and sense of well being. Patients no longer fatigue easily. They become capable of much more mental and physical work.

4. The development of normal emotional reactions. Patients lose their feminine characteristics. Their shyness disappears. They become more aggressive and no longer run away from arguments and physical combat. One patient recently wished to discontinue treatment because he was worried about becoming so unconcerned about the thoughts and actions of other people. Some behavior effects in animals are of interest. The administration of male sex hormone makes female canaries sing like males, it makes hens crow, and chickens receiving it assume dominance over the others.

5. An increase in basal metabolism of as much as 30 points. The increase may be as great as 60 points with methyl testosterone.

The changes in such patients are very striking and represent one of the miracles of modern medicine. In order to prevent skeletal disproportions, it is necessary to begin treatment at the age of 10 to 12 years.

Impotence.—It is important to bear in mind that impotence is a symptom, not a disease. It is most commonly neurogenic in origin, but it may be associated with a deficient production of the male sex hormone and with various organic diseases and may be related to the local condition of the genitalia as, for example, inflammatory processes. When it is the result of a definite glandular deficiency, it can be treated effectively with testosterone propionate in a dose of 25 mg. three times a week. Since it is not always possible to determine whether or not the condition is glandular in origin, it is sometimes necessary to carry out a therapeutic test for two or three weeks. If improvement occurs, it may be assumed that a definite deficiency of male sex hormone was present. Glandular therapy is without effect when the condition is neurogenic in origin.

The Male Climacteric.—There is no definite epoch in the male like the menopause in the female, but there does occur a gradual reduction in the amount of sex hormone produced with advancing years. This change is sometimes so pronounced that definite symptoms of deficiency are produced which resemble those of the menopause in the female. They include vasomotor disturbances with hot flashes, sweating, chills and paresthesias. Various emotional disturbances are noted, including nervousness, irritability, fatigue and depression. Patency is greatly reduced, and there develops a lack of interest in social and business life and a decrease in mental concentration and energy. Great care must be taken to exclude organic disease. Most tired old men are not suffering from the male climacteric. When the condition exists, great improvement may follow the administration of 25 mg. of testosterone propionate three times a week.

INFLUENCE ON GROWTH

One of the most interesting and important recent developments is the demonstration of the influence of testosterone propionate on the growth of young boys.¹⁶ Chorionic gonadotropin produces the same effect by stimulating the testes to produce male sex hormone. The administration of these materials will cause young boys to grow at three to four times the normal rate. They influence not only the growth of bone but that of the musculature and of every tissue in the body. This means that the male sex hormone is a general growth stimulus influencing the growth and function of all tissues. It will cause the bones of young boys to age at three to four times the normal rate and induce premature closure of the epiphyses. It does not appear to affect the final height, because the rapid aging of bone is counterbalanced by the rapid increase in height. The increase in the rate of growth is self limited, and it is impossible to produce gigantism with this material. As there is no preparation of the pituitary growth factor which is effective clinically, the administration of male sex hormone is of value in the treatment of pituitary dwarfism. While it produces a

16. Thompson, W. O.; Heekel, N. J., and Morris, R. P.: *Endocrine Regulation of Growth*, J. Clin. Endocrinol., to be published.

considerable amount of growth in this condition, it does not result in normal height of the skeleton. The male sex hormone cannot be substituted for the thyroid hormone or the pituitary hormone in skeletal development. The presence of the thyroid and pituitary growth factors is necessary for the skeleton to achieve normal height, and they appear to be involved primarily with growth of the skeleton in length. Sex hormones seem to be concerned principally with skeletal molding. The acceleration of growth during the administration of this material to young boys is similar to the acceleration observed without treatment during normal puberty.

MISCELLANEOUS

The use of male sex hormone has been suggested in the following conditions:

1. Benign prostatic hypertrophy.
2. Homosexuality.
3. Functional uterine bleeding.
4. Dysmenorrhea.
5. After-pains.
6. Suppression of lactation.
7. Engorgement of the breasts.
8. Menopausal syndrome.

Its value in most of these conditions is open to question. Heckel¹⁷ was unable to observe any improvement in prostatic hypertrophy during its administration. Since the development of the prostate is dependent on the presence of male sex hormone, it is difficult to see why this material would cause a decrease in size in later life. The androgen/estrogen ratio in the urine is said to be abnormally low in certain male homosexuals, but the glandular treatment of this condition is very disappointing. While it may be of some value in functional uterine bleeding, it is very doubtful whether male sex hormone should be used in the female because, even in moderate doses, it may cause hirsutism and lowering of the pitch of the voice.

HARMFUL EFFECTS OF MALE SEX HORMONE

Among the harmful effects of the administration of male sex hormone may be listed:

1. Injury to the normal testis, with production of azoospermia.¹⁸ Recovery from such injury may follow the omission of treatment.
2. Symptoms of heart failure in old men with arteriosclerosis or hypertensive heart disease.
3. Pitting edema of the lower legs.
4. Acne vulgaris.
5. Hypertrichosis in women.
6. Hypermetabolism, the mechanism of which is unknown.

Acne Vulgaris.—One of the most interesting side effects of the administration of male sex hormone is the production of acne. The development of acne is observed very commonly during the administration of male sex hormone and chorionic gonadotropin to young boys. It is also often noted in the treatment of older eunuchoid men with testosterone propionate. It appears spontaneously in some boys and girls at the time of puberty in conjunction with an increase in the output

of androgenic material in the urine. There would thus appear to be some relationship between androgens and the production of acne, although the problem is a complex one. The titer of androgens is low in some patients with acne, and in some young men and young women the condition is improved by the administration of chorionic gonadotropin. The development of acne is undoubtedly influenced by some condition inherent in the skin itself.

STERILITY

The treatment of sterility is unsatisfactory because of the absence of gonadotropins that influence spermatogenesis. In some animals small doses of testosterone propionate will maintain spermatogenesis after hypophysectomy, but in man this material appears to depress the spermatogenic function of the normal testis, even to the point of azoospermia.¹⁸ The administration of male sex hormone therefore plays no role in the treatment of sterility.

CANCER OF THE PROSTATE

Huggins and Hodges¹⁹ have observed that after castration the signs and symptoms of cancer of the prostate are greatly alleviated in some patients. Roentgen ray evidence of metastases in bone may disappear. The same changes may be induced by functional castration with diethylstilbestrol,²⁰ which damages the testes. Sufficient time has not yet elapsed to say precisely what the effect of treatment is, but the longer the patients are followed, the less convincing becomes the evidence of a complete cure. The condition often recurs, and many of the patients die eventually of cancer of the prostate. For this reason Kretschmer²¹ has questioned the value of castration in this condition. Heckel²² has suggested that treatment with diethylstilbestrol (5 mg. daily) may be more effective than surgical castration because it inhibits the gonadotropic activity of the anterior lobe of the pituitary. After castration this function is increased and may result in stimulation of the adrenal cortex to produce androgenic material. The observations are very interesting because they furnish the first clearcut evidence in man of the influence of a hormone on the growth of cancer.

700 North Michigan Avenue.

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Medicine of the Middle Ages (201-1514).—The thirteen hundred years between the death of Galen and the birth of Vesalius cannot be accredited with any major contribution to the understanding of the basic nature of disease. This was a period, nevertheless, during which the groundwork for the renaissance in medicine was laid. The middle ages was a period of rigid scholasticism in medicine, as it was in all phases of social and cultural development. It was a period in which authority held sway and the influence of tradition was dominant. Since this was a time in which the western world suffered great upheavals and great depressions, with much limitation of intellectual activity, it was necessary for medicine to find other soil in which to develop. Thus it came about that the Arabs were provided with an opportunity to contribute toward the development of medical thought.—Forbus, Wiley D.: *Reaction to Injury*, Baltimore, Williams and Wilkins Company, 1943.

CONVALESCENT SERUM AGAINST
MEASLESNIELS DUNGAL, M.D.
NEW YORK

Since Degkwitz¹ published his first report on the prophylactic value of convalescent serum against measles, this method of prophylaxis has been used more or less in every epidemic in Iceland. Owing to the isolation of the country, many years may elapse between two epidemics of measles. In the last century over twenty years could pass between epidemics, and when the disease at last was brought in it swept like a fire, attacking people of all ages and killing great numbers of them, behaving on the whole like a dangerous disease. In 1846 it killed 2,000 people, or 35 per thousand of the entire population. In 1882 the mortality rate was 24 per thousand of the whole population. Such enormous mortality rates are no longer seen, and the intervals between epidemics have grown shorter, now usually being about seven years. The disease, on the whole, runs a much milder course, just as it has in the United States and on the European continent. It usually spreads all over the country in six to twelve months and then dies out completely until the next time it is imported.

The last epidemic started in May 1943 in Reykjavik and passed all over the country during the summer. Owing to the shortage of labor, persons who had not had measles before were anxious to avoid the disease during the period in which their services were badly needed, and each day of sickness meant a considerable loss of income. This added greatly to the normal demand for protecting children, particularly those whose resistance had been lowered by tuberculosis. As there was therefore reason to expect a considerably increased demand for convalescent serum, we encouraged people through press and radio to volunteer for donorship as soon as a week had passed since their fever had dropped to normal but not before fourteen days had passed since they fell ill.

POOLING OF SERUM

As we had a considerable number of adult patients, we did not bleed anybody under 16 years of age. The higher age limit was set at 50. We took 400 to 500 cc. from each person who was considered suitable. A total of about 90 liters of blood was taken in the course of a month from convalescent patients, and from this we obtained about 30 liters of serum, all of which was passed through Seitz filters for safety's sake, although every precaution was taken to preserve sterility during bleeding and pooling of serum. None of the donors complained of any harmful effects of the bleedings.

DOSAGE

The serum was issued in ampules of 5 cc. and rubber-covered glass bottles of 20 cc. We recommended 1 cc. of serum per year of age, but never less than 2 cc. and up to 20 cc. for adults. In Reykjavik the serum was administered by general practitioners, but in Akureyri this was done by the chief officer of public health, who kept careful records of all his injections

and was therefore able to furnish us with reliable material for this report. In Reykjavik we could collect information only by questioning the mothers of injected children aided by a report on 20 children from one of the doctors.

RESULTS

We have been able to collect reports on 203 persons who received serum. Of these 112 were in Akureyri and 91 in Reykjavik. Of this number 61, or 30 per cent, contracted measles and 139, or 70 per cent, remained symptomless.

The percentages were practically the same in Akureyri and Reykjavik.

Further details of the 61 who contracted measles were obtained from 45 persons. Of these 45, 16 were affected within ten days after the injection, 15 were affected between ten and thirty days, 3 were affected between the thirtieth and the fiftieth day, and 11 were affected after fifty days had passed from the injection.

Those who fell sick within ten days after injection must all have been infected at the time of injection. Several fell sick on the day following the administration of serum, which evidently had not been able to prevent the outbreak of the disease. Assuming that serum may effectively prevent measles only if given during the first five days of the incubation period, one may expect that those who fell ill during the first ten days after the injection had been infected fifteen days or more previously, i. e. the disease had become so firmly rooted that its course could not be expected to be halted.

But although the progress of the disease may not be prevented, its outbreak may be delayed when serum is given during the incubation period. An illustrative example of this we saw in a man aged 30 who came to our institute to be injected with serum because he was leaving town for a distant place to which he did not wish to carry the measles. He had been in contact with a patient in the catarrhal stage, one of the first few in Reykjavik, who had broken out with a typical rash on the day following this contact. When the man came to us, five days had passed since the contact had taken place. We gave him 20 cc. of serum and told him to return before he left town. On the ninth day after the injection (the fourteenth after exposure) he came to us symptom free, but in a letter we received from him later he stated that he had had a slight rash fourteen days after the injection (nineteen days after the infection) and had been in bed two days with a slight fever and a typical rash, which vanished in the course of two days.

It must therefore be assumed that a considerable proportion of persons who fell sick ten to thirty days after injection were infected at the time of injection, and that the incubation period was prolonged considerably through the administration of serum, as will be mentioned later.

On the other hand, those patients who did not fall sick until fifty days or more had passed from the injection form a different group. At that time most of the passively conferred immunity will have disappeared and the resistance will have been brought down to its original level. If a person falls sick on the fiftieth day (and strikingly many fell sick on the fiftieth to the fifty-fourth day), they must be assumed to have been exposed to infection fourteen days before, which sug-

From the Department of Pathology and Bacteriology, University of Iceland, Reykjavik.
1. Degkwitz, R.: *Deutsche med. Wchnschr.* 48: 26, 1922.

gests a protection of at least thirty-six days, or well over a month, as may be expected with homologous serum.

There are remarkably few persons who are affected between the thirtieth and the fiftieth day, and in this series those who were all fell sick on the thirtieth and

TABLE 1.—*Results with Relation to Age*

Age, Years	Symptom Free	Measles
0-1.....	14	0
1-2.....	25	3
2-3.....	17	4
3-4.....	18	2
4-5.....	6	2
5-6.....	7	1
6-7.....	5	2
7-8.....	3	1
8-12.....	1	4
12-20.....	8	5
20 and older.....	17	15
	121	39

the thirty-first day; no one in the entire group fell sick between the thirty-second and the fiftieth day.

Of the 3 children who fell sick on the thirtieth and the thirty-first day these details were noted: 1. A child aged 1 year was inoculated with 5 cc. on April 30 and fell sick on May 31; it was only slightly ill. It had been exposed to infection three days before the injection of serum. 2. A child aged 1 year got 1 cc. of serum on July 5 but fell sick on August 6. In this case the dose was smaller than we recommended, 1 cc. instead of the recommended not less than 2 cc. 3. A child aged 4 years received 5 cc. on June 19 and fell sick on July 20; the disease was very mild, and no fever preceded the rash.

Those who fell sick thirty to thirty-two days after the injection of serum must be supposed to have been infected not less than fourteen days before, and probably still earlier, as one must expect a prolongation of the incubation period by the serum. Actually it is more likely that the contact took place fourteen to twenty-one days before, or seven to fourteen days after the injection of serum. One is then faced with the questions whether it is more probable that the infectious agent has broken through the passive resistance supposed to be conveyed with the serum or whether the children have been infected at the time of injection and the incubation period prolonged up to a month or more. As we do not know the potency of the serum, it is possible that one or more donors have yielded serum only slightly potent. Yet this is not likely to have had noticeable influence when at least 10 serums from different persons were pooled, as was our custom.

When, on the other hand, it is considered that nobody fell sick between the thirty-second and the fiftieth day, we are inclined to suppose that the incubation period may be prolonged up to thirty-five days, as in the case of the child who was exposed three days before injection.

If those who fell sick about the thirtieth day were infected after injection, they must, as already mentioned, have contracted the infectious agent some time during the first fourteen days after injection of the serum. When one compares the obvious efficacy of

the serum during the period from thirty-two to fifty days, which suggests full resistance eighteen to thirty-six days after injection, it can hardly be assumed that the resistance to contagion is less during the first two weeks after injection than after four weeks have passed.

RESULTS WITH RELATION TO AGE

Table 1 shows the effect of serum in different age groups. It indicates that adults and children of the older age groups were more susceptible to measles in spite of the serum than the younger children. In order to protect the older age groups completely, they should probably receive bigger doses of serum. But the advantage is doubtful, as will be discussed later.

COURSE OF DISEASE IN SERUM-INJECTED PATIENTS

There was unanimous consent among physicians and the public that serum-injected persons who contracted the disease had it in much milder form than those who did not receive any serum. Many were only slightly sick for two or three days, and a considerable number were not apparently sick until they noticed the rash. In Reykjavik we made a comparison between 17 children who fell sick after they were given serum and 49 who got no serum (table 2).

In unprotected children pneumonia was noticed in 5 and purulent otitis media in 1. A seventh child got chronic otitis and conjunctivitis. In the protected children no complications were noted.

HAS THE SERUM THERAPEUTIC VALUE?

But little is known about the possible therapeutic value of measles convalescent serum. The Council on Pharmacy and Chemistry² considers the therapeutic value of measles serum doubtful but states that owing to lack of experience no well founded opinion can be uttered at present.

We too have had little experience to add in this field, but seeing the striking prophylactic effect of serum we expected it to be of some value therapeutically if larger doses were given. We therefore encouraged our colleagues to try the serum therapeutically in the later phase of the epidemic, when we had serum available, but we got no report on administration after a rash had developed. But many doctors who did not give serum until late in the incubation period and even not before the patient was well in the catarrhal stage were con-

TABLE 2.—*Comparison of Results for Treated and for Untreated Children*

Patients	Fever, Average Number of Days	Highest Temperature Average
Serum injected.....	3.6	102.5 F.
No serum.....	8.5	104 F.

vinced of the beneficial effects of the serum, to which they attributed the mild course of the measles in these cases.

In a small public school some children were injected in the catarrhal stage, and the school physician informed us that the effect was unmistakable, there being no

2. Human Convalescent Measles Serum and Human Convalescent Scarlet Fever Serum, report of the Council on Pharmacy and Chemistry, J. A. M. A. 121:49 (Jan. 2) 1943.

comparison between mildness of the attack in the inoculated children as compared with the severity in those who got no serum.

In 1 case we tried serum therapeutically.

A boy aged 3 years who had got no serum was taken suddenly ill at night and had high fever the following morning. His face was distinctly swollen and the unusually agile boy was quite prostrated. No rash was visible, but typical Koplik's spots were found in his mouth. As the disease was found to start severely we gave him at once 40 cc. serum subcutaneously. The boy complained and whimpered all day long on account of the intumescence caused by the serum on his abdomen and during the following night he was very ill, with a fever of 40 C. (104 F.). But on the following morning his temperature was normal (twenty-four hours after the injection of serum), and his parents would not believe that this had been measles, as no rash appeared and the boy seemed to be in perfect health again. They were told that a rash would probably soon appear, and four days later the boy got an unusually great rash, accompanied by slight fever for two days. Yet he was so well that it was difficult to keep him in bed. The boy's sister fell sick a little later without having been given serum. Her disease began with milder symptoms, yet she had fever for a week and her recovery lasted much longer.

CONCLUSIONS

Convalescent serum is useful in two ways against measles: On the one hand, it may be applied to effect a complete protection against the disease, and, on the other, it may be used to alter the course of the disease in the following manner: prolongation of incubation period, milder symptoms, lower fever, shorter illness, less complications and a corresponding quicker recovery. Some people want their children to contract measles, as it is usually more desirable to have the disease in childhood than to have to expect it some time later in life, when time is more precious. In order to effect a milder course of the disease the normal procedure should be to bring the child into contact with an infectious patient and give serum six to eight days later. If an adequate dose is given, the child will in all probability get a slight attack of measles yet sufficient to confer a lifelong immunity.

In some cases complete protection will always be indicated, particularly for patients suffering from tuberculosis or other diseases where an addition of measles must be considered as a dangerous complication.

A therapeutic use of convalescent serum may come into consideration, particularly during the first days of illness, when the disease has an alarming start, especially in patients with weakened resistance.

SUMMARY

In an epidemic of measles in Iceland in 1942, 203 persons were given convalescent serum. Of these 139, or 70 per cent, remained symptom free. Most of the others got the disease in a considerably milder degree than those not protected. The duration of the protection afforded by serum may last as long as thirty-six days at least. There are indications which suggest that the incubation period may be prolonged up to thirty-five days through injection of serum.

Serum may be of value if injected late in the incubation period and even in the catarrhal stage. A case was observed in which the serum appeared to be of therapeutic value.

2 East 86th Street.

PENICILLIN THERAPY OF GONORRHEA IN MEN

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Penicillin inhibits the growth of bacteria; some authorities maintain that it is an extremely powerful bactericidal agent also. It is nontoxic in various amounts necessary for therapeutic purposes.

This report is a continuation and combination of two previous preliminary reports published by Drs. Mahoney, Van Slyke and Arnold at the U. S. Marine Hospital, Staten Island, N. Y. This report is not made to establish the efficacy of penicillin in the treatment of gonorrhea but to try to determine the proper and minimal dosage to obtain the necessary cure.

Numerous articles have appeared on treatment with penicillin. In the first one, by Herrell, Cook and Thompson,¹ 5 cases were reported in which the continuous intravenous drip method was employed with favorable results. In the second and third articles, by

Details of Treatment

Group	Number Treated	Number Cured	Number Failed	Number of Doses	Units per Dose	Total Dosage
A	25	24	1	16	10,000	160,000
B	23	23	0	5	20,000	100,000
C	25	21	4	4	25,000	100,000
D	25	21	4	5	15,000	75,000
E	21	16	5	6	10,000	60,000
F	32	22	0	6	20,000	120,000
G	21	20	1	6	18,750	112,500
H	16	16	0	6	16,666	100,000
I	287	277	10	6	20,000 (1st and 6th 20,000; 4 of 10,000)	80,000
J	29	28	1	6	10,000	60,000
K	26	26	0	6	10,000	60,000

Dr. Mahoney and his associates² and by Van Slyke, Arnold and Buchholtz,³ the intramuscular route was employed. The results will be correlated and included in the present series of cases.

The patients included in this report were all young, healthy men of the Merchant Marine and enlisted personnel of the Coast Guard, their chief disability being gonorrheal urethritis. All had failed previously to obtain a cure following some form of sulfonamide therapy, the amounts varying anywhere from 20 to 500 Gm. during the course of treatment. The diagnosis was based on positive spread and confirmed by positive culture for gonococci.

Penicillin may be administered by repeated intravenous injections, by continuous intravenous drip, or by the intramuscular route. When administered by intramuscular injection it is usually given in a concentration of 5,000 units or more per cubic centimeter, injections being made at short intervals (one to three hours). Freshly prepared solutions of penicillin are preferred.

From the U. S. Marine Hospital, medical director, William Y. Hollingsworth, medical officer in charge.

1. Herrell, W. E.; Cook, E. N., and Thompson, L.: Use of Penicillin in Sulfonamide-Resistant Gonorrheal Infections, *J. A. M. A.* **122**: 289 (May 29) 1943.

2. Mahoney, J. P.; Ferguson, C.; Buchholtz, M., and Van Slyke, C.: The Use of Penicillin Sodium in the Treatment of Sulfonamide-Resistant Gonorrhea in Men, *Am. J. Syph., Gonorr. & Ven. Dis.* **27**: 525 (Sept.) 1943.

3. Van Slyke, C. J.; Arnold, R. C., and Buchholtz, M.: Penicillin Therapy in Sulfonamide-Resistant Gonorrhea in Men, *Am. J. Pub. Health* **33**: 1392 (Dec.) 1943.

Our initial trial was by the intravenous route on patients with gonorrhea resistant to the sulfonamides. Five patients, each receiving a total of 125,000 units of penicillin, were treated. This amount was divided into five injections of 25,000 units dissolved in 10 cc. of fresh sterile distilled water given every four hours. The result was three cures and two failures. We did not consider this result to be satisfactory. We found that the penicillin is too rapidly excreted when given by vein.

It was then decided to use the intramuscular route. The result of this method was given in a report by Dr. Van Slyke² and the Venereal Disease Research Laboratory in a series of 75 cases studied. A total dosage of 160,000 units intramuscularly was given over a treatment period of forty-five hours. The dosage consisted of 10,000 units every three hours of sixteen injections (day and night). Seventy-four patients responded satisfactorily; 1 was a therapeutic failure. No serious toxic reaction of any kind occurred.

A reduction in the dose-time ratio was then used. The result of this method will be seen in the accompanying table.

The sum total of cases treated with the various dosages, as shown in the table, was 753, of which 29 were failures, a percentage of 4.

The following groups are essential for discussion. Group A: Of 75 patients treated, 74 were cured and there was 1 failure. The result is good, but the period of treatment was too long, and too many injections were required (one every three hours, day and night, for two days). In group B there were 23 patients cured out of 23 treated. Group F showed the same result; out of 32 patients treated there were 32 cured. The latter was an excellent group with satisfactory dosage and a sufficient number of doses. Group H showed a good result, with 16 patients treated and 16 cures obtained. In group I 387 patients were treated and 377 responded satisfactorily. This group of patients received 20,000 units of penicillin as the initial dose and also as the last and sixth dose. The dosage in between consisted of 10,000 units for four injections. When the medication is limited and the number of patients is large, this appears to be the most satisfactory method of treatment at the present time.

It appears that the time factor has been satisfactorily established as a three hour interval between doses. The number of doses necessary for results is five to six injections at least. The intramuscular route is the most satisfactory because it is simple, easy to give, and absorption is slower than with the intravenous route. As regards toxicity, there was no evidence of any immediate or delayed reaction noticeable from the drug. The strains of gonococcus are very sensitive to penicillin. There is no difference with regard to response between untreated patients and those who previously failed to respond to sulfonamides.

COMMENT

The clinical study based on 753 patients treated with penicillin indicates that the strains of gonococci are very sensitive to this drug. Groups B, F and H showed no failures. This appears to indicate that a total of 100,000 units or more is necessary to produce a cure. It also indicates that five to six injections are necessary. In group I the total dosage of only 80,000 units was due to limitation of the drug. The results are excellent in that of 387 patients treated 377 were cured, with 10 failures, the result showing only 3 per cent failures.

The patients treated unsuccessfully were eventually cured as follows: Four were treated with a combination of chemotherapy plus fever therapy⁴ (i. e. 6 Gm. of sulfathiazole followed by fever therapy, with a temperature of 106 F. for six hours). The sulfathiazole was given in doses of 1.0 Gm. every four hours for six doses, and then within two hours fever therapy was employed. Five patients responded after a second course of penicillin, in accordance with group F. One patient required a third course of penicillin, a total of 175,000 units divided into 25,000 units given every three hours intramuscularly for seven injections.

The dosage necessary to produce a cure is 20,000 units per dose for six injections, making a total of 120,000 units. This has been shown in 42 cases with no failures.

The next best group is group I, in which 381 patients were treated as follows: 20,000 units for the first dose, then 10,000 units for the next four doses and finally 20,000 units for the sixth and last dose a total of 80,000 units. The result showed 377 cures and 10 failures, a little over 2 per cent of failures.

As regards toxicity, there was no evidence of any immediate or delayed reaction noticeable from the drug.

TREATMENT OF ASIATIC CHOLERA WITH SULFAGUANIDINE

CLINICAL STUDY OF TWENTY-TWO CASES

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After obtaining a favorable result in a number of cases of bacillary dysentery by the administration of sulfaguanidine, I undertook experiments on its efficacy in other acute infections in which the intestinal tract is involved by bacilli.

The unexpected prevalence of Asiatic cholera in Kweilin last summer gave me an opportunity to study another kind of acute infection for which no effectual remedy had previously been found.

I was surprised to find sulfaguanidine efficacious in the first case of Asiatic cholera in which I administered it. At the same time I doubted whether my observation could be sufficiently adequate. After several experiments, however, I had to concede that sulfaguanidine could give an unexpected efficacy in Asiatic cholera and that an effective remedy had been found whereby our bitter enemy cholera, which had been killing a great many people in the world for many years, could eventually be subdued.

Twenty-two patients with Asiatic cholera who had been treated with sulfaguanidine were observed. Most of them were laborers. Their ages ranged as follows: 10-20, 2; 20-30, 8; 30-40, 10; 40-50, 1; 50-60, 0; 60-70, 1.

METHOD OF ADMINISTRATION

In 19 adults, 3 Gm. was given as a first dose and 1 Gm. every two hours for six times; then 1 Gm. every four hours for one to two days. One patient was a boy aged 11 years. The first dose was 2 Gm., and the maintaining doses were 0.75 Gm. Another patient, a girl aged 6 years, was given 1.5 Gm. as a first dose and 0.5 Gm. as maintaining dose.

4. Ferguson, C.; Buchholtz, M., and Gersten, S.: Single Combined Treatment for Gonorrhea, *Am. J. M. Sc.* 204: 685 (Nov.) 1942.
From the Department of Medicine, Kwangsi Provincial Medical College.

The patients were ordered to drink as much water as possible, and circulatory stimulants, such as camphor water and tincture of digitalis, were repeatedly given either by subcutaneous injection or by mouth. But no other drugs were given during the whole treatment.

The hours for beginning to receive treatment of sulfaguanidine varied greatly: four hours after onset, 1 case; eight hours, 10 cases; twelve hours, 5 cases; eighteen hours, 4 cases; twenty-four hours, 2 cases.

CLINICAL OBSERVATIONS

All these cases showed typical symptoms of cholera: vomiting, severe rice water stool, muscular cramps and diminution both in amount and in frequency of urine, even anuria. Some patients were in the stage of collapse, but the severity of dehydration varied.

Three to four hours after taking the drug, the patients improved: frequency of vomiting and diarrhea diminished gradually, the voice returned and the muscular pains disappeared, although the epigastric discomfort still remained.

Three to four hours later, vomiting and diarrhea almost ceased, cyanosis gave way to a bright color of the skin and mucous membrane, and the secretion of urine commenced or increased. The patients began to improve generally. Thereafter, diarrhea not only subsided but the patients' bowels tended to become constipated.

Eight hours after treatment the cultures of cholera vibrio in the stool were negative.

As this treatment tends to decrease vomiting and diarrhea in a few hours, a continuous and overwhelming loss of fluid from the tissues is thereby prevented, thus avoiding the danger of severe dehydration, and fluid taken by mouth helps to restore a part of the loss.

At first I was afraid that the tablets of sulfaguanidine would be expelled by vomiting. But this occurred in only 3 cases, in the first or even the second dose.

Of the 22 patients, 21 were cured in a short time and 1 died within seventy-three hours of being ill. The mortality rate of Asiatic cholera ranged from 20 to 60 per cent in various clinics, but under this treatment even without the injection of salt solution the death rate was remarkably reduced. On the other hand, of patients treated with earlier methods— injection of hypertonic salt solution, administration of kaolin, potassium permanganate and so on, the death rate is still as high as 26 per cent (according to the report of the Provincial Hospital of Kweilin in 1943). I fancy that the combined application of sulfaguanidine and salt solution injection will reduce the mortality to less than 5 per cent.

SUMMARY

1. Twenty-two patients with Asiatic cholera treated with sulfaguanidine were observed. Only one patient died.
2. From three to four hours after the beginning of this treatment the patients showed general improvement.

No. 1, Chuang-srau.

Ideals of Humanity.—But now and always medical men recognize that above all ideals of merely national patriotism and prestige are the ideals of humanity. And so we find medical men laboring to save life and to ease suffering whether among friends or foes, thus giving practical expression to the ideal that "above all nations is humanity."—Conklin, Edwin G.: "The Doctor's Dilemma" of Medical Ethics in Peace and War, *Science* 99:187 (March 10) 1944.

THIOURACIL

ITS USE IN THE PREOPERATIVE MANAGEMENT OF SEVERE HYPERTHYROIDISM PRELIMINARY REPORT

ELMER C. BARTELS, M.D.

BOSTON

Since Plummer¹ in 1923 introduced Lugol's solution for the treatment of exophthalmic goiter, iodine has been a routine agent in the preoperative management of these patients. However, in spite of its proper use there still remains a group of cases in which there is serious surgical risk. These patients are very toxic, having had the disease a long time. A large thyroid gland and a high basal metabolic rate usually are present. Widespread visceral strain is evident, as shown by great weight loss and at times cardiac complications. Preoperative improvement of these patients beyond the state obtained by the use of Lugol's solution and the usual supportive measures is desirable, but until recently no effective measures were available. Therefore these patients continued to cause the physician anxiety during the forty-eight hour postoperative period, and many of them required multiple stage operations to avoid severe reactions.

Recently a new group of substances with the power to decrease thyroid toxicity and to reduce the basal metabolic rate has been found. In 1941 the MacKenzies and McCollum,² in experimental work on rats, observed hyperplasia of the thyroid gland with a drop in the basal metabolic rate after the administration of sulfanilylguanidine. This action was not influenced by iodine but was abolished by thyroxine or desiccated thyroid. In 1942 this work was confirmed by Richter and Clisby³ and by Kennedy,⁴ who also observed similar results from the administration of thiourea derivatives. The following year Astwood and his co-workers⁵ reported that thiourea, and especially thiouracil, was effective in inhibiting the function of the thyroid gland. Astwood⁶ then suggested the use of these compounds in the treatment of clinical hyperthyroidism. He reported that 2 patients had relief of symptoms and a return to normal of the serum cholesterol and basal metabolic rate after one to two weeks of treatment.

In 1943 Williams and Bissell⁷ confirmed Astwood's results. They reported that 9 unselected patients with thyrotoxicosis were treated with thiouracil and were relieved of toxic manifestations. The basal metabolic rate and blood iodine returned to normal in two to six weeks. Both exophthalmic and adenomatous goiters with hyperthyroidism responded to thiouracil.

Although thiouracil has not yet been proved to be curative, its ability to reduce the basal metabolic rate and improve the condition of the hyperthyroid patient suggested its use as a preoperative therapeutic measure

- From the Department of Internal Medicine, the Lahey Clinic.
1. Plummer, H. S., and Boothby, W. M.: The Value of Iodine in Exophthalmic Goiter, *Illinois M. J.* 46:401-407 (Dec.) 1924.
 2. MacKenzie, J. B.; MacKenzie, C. G., and McCollum, E. V.: Effect of Sulfanilylguanidine on the Thyroid of the Rat, *Science* 94:518-519 (Nov. 28) 1941.
 3. Richter, C. P., and Clisby, K. H.: Graying of Hair Produced by Ingestion of Phenylthiocarbamide, *Proc. Soc. Exper. Biol. & Med.* 48:684-687 (Dec.) 1941; Toxic Effects of Bitter Tasting Phenylthiocarbamide, *Arch. Path.* 33:46-57 (Jan.) 1942.
 4. Kennedy, T. H.: Thiouracil as Goitrogenic Substances, *Nature, London* 150:223-234 (Aug. 22) 1942.
 5. Astwood, E. B.; Sullivan, J.; Bissell, A., and Tyslowitz, R.: Action of Certain Thiourea and Thiouracil on the Function of the Thyroid Gland of the Rat, *Endocrinology* 32:210-225 (Feb.) 1943.
 6. Astwood, E. B.: Treatment of Hyperthyroidism with Thiouracil and Thiouracil, *J. A. M. A.* 122:78-81 (May 8) 1943.
 7. Williams, R. H., and Bissell, G. W.: Thiouracil in the Treatment of Thyrotoxicosis, *New England J. Med.* 229:97-108 (July 15) 1943.

for the severely sick patient. Experience has shown that the basal metabolic rate and clinical toxicity cannot be returned to normal by iodine in the majority of cases. It was felt that, if thiouracil could accomplish this, its use would be of great help, since a normal or near basal rate would imply an ideal operative state with a minimum of anesthesia and postoperative reaction. This assumption was justified by the fact that a patient with mild hyperthyroidism who responds satisfactorily to Lugol's solution with resulting near normal basal metabolic rate tolerates surgery with little or no reaction.

This report, which is the result of studies started in May 1943, includes the first 11 severely toxic patients treated preoperatively with thiouracil.⁸

REPORT OF CASES

CASES 1 TO 8.—All 8 patients had severe hyperthyroidism with a high basal metabolic rate, except 1 (chart 1, patient 2), a woman 64 years of age with long standing hyperthyroidism, due to adenomatous goiter. One patient, a man aged 50 (chart 1, patient 5), had lost 55 pounds (25 Kg.) and had cardiac failure.

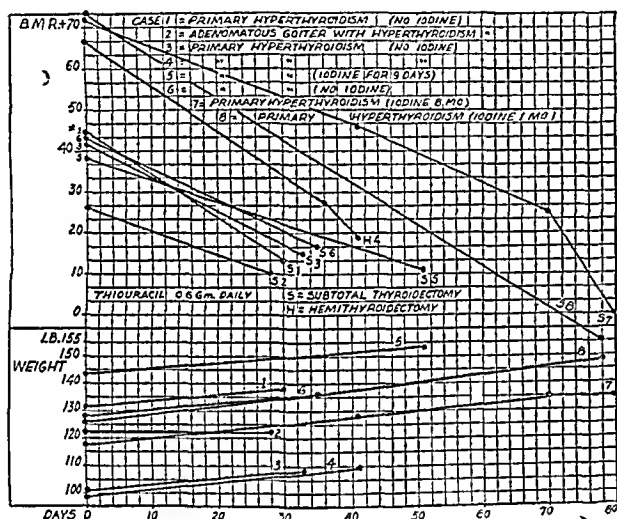


Chart 1.—Basal metabolic rate and weight in cases, 1, 2, 3, 4, 5, 6, 7 and 8.

In all 8 cases a lowering of the basal metabolic rate with concomitant clinical improvement was obtained. Two patients (chart 1, patients 5 and 6), who had taken iodine without clinical improvement before starting thiouracil treatment, showed a delay in the lowering of the basal metabolic rate. With the subjective and objective improvement there was a gradual and steady gain in weight.

Seven of these patients underwent a subtotal thyroidectomy with an extremely satisfactory anesthesia followed by an uneventful postoperative course. One patient (chart 1, patient 4) was submitted only to a hemithyroidectomy because of extreme enlargement of the thyroid gland and our lack of sufficient experience with the postoperative course of patients treated preoperatively with thiouracil. The anesthesia and postoperative course were excellent, and without a doubt the patient would have tolerated a subtotal thyroidectomy.

CASE 9.—A woman aged 54 had suffered from persistent toxicity for fifteen years, having had four previous operations (1928, 1929, 1931 and 1937) elsewhere on the thyroid gland (chart 2). There had been gradual loss of 30 pounds (13.6 Kg.) in weight, from 128 to 98 pounds (58.1 to 44.5 Kg.). Besides the emaciation, stimulation, prominence of the eyes and pronounced warmth of the skin, she showed evidence of mild cardiac decompensation. The pulse was totally irregular, the rate being 120 beats per minute. There were six firm thyroid

remnants in the neck, each measuring about 2 cm. in diameter. The basal metabolic rate was +65 per cent.

The usual treatment for a thyrocardiac patient was begun, consisting of bed rest, a high caloric diet with supplementary vitamins, 30 drops of Lugol's solution a day and digitalis. After fourteen days of this treatment the basal metabolic rate

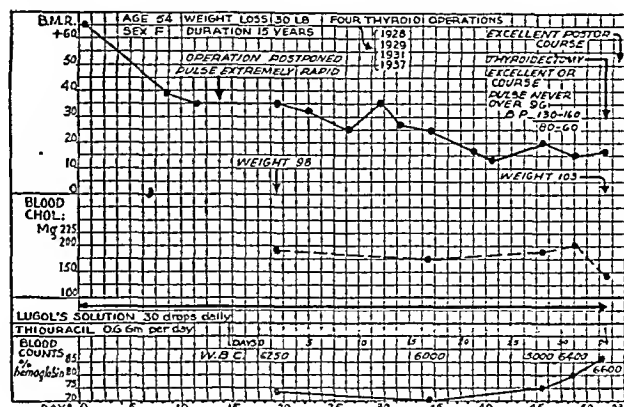


Chart 2.—Course in case 9.

had dropped to +35 per cent, but there was only slight clinical improvement.

Removal of the thyroid remnants was planned, but with the induction of the anesthesia the pulse rate became so rapid that the operation was thought inadvisable. It was decided that, unless the condition of the patient could be improved further, surgery should not be undertaken.

The administration of thiouracil in the daily dose of 0.6 Gm. was started. During thirty-four days of treatment the basal metabolic rate gradually fell to +16 per cent. The patient gained 5 pounds (2.3 Kg.) in weight and clinically was much improved. The thyroid remnants were then removed with satisfactory anesthesia and postoperative course.

CASE 10.—A woman aged 32 was admitted to the hospital with primary hyperthyroidism of seven years' duration (chart 3) and 20 pounds (9.1 Kg.) loss in weight, from 130 to 110 pounds (59 to 49.9 Kg.). During the seven years she had taken iodine without cure. The initial basal metabolic rate was +56 per cent. After ten days of bed rest, a high caloric diet and 30 drops of Lugol's solution a day, the basal metabolic rate had dropped to +22 per cent and the weight had

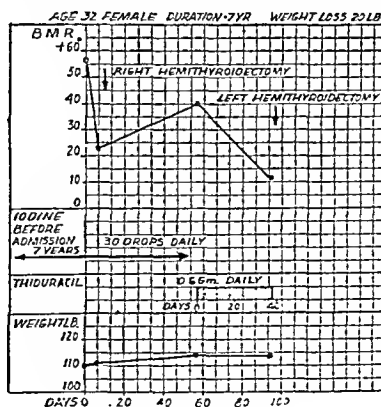


Chart 3.—Course in case 10.

increased 1 pound. Since the patient was still very toxic, only a right hemithyroidectomy was done. On the seventh postoperative day she was discharged from the hospital to continue on 30 drops of Lugol's solution a day and to return to the hospital in six weeks.

On readmission she was still extremely toxic, the basal metabolic rate being +40 per cent. She was then started on 0.6 Gm. of thiouracil a day and discharged from the hospital.

8. The thiouracil was supplied by Dr. B. W. Carey, Lederle Laboratories, Inc., Pearl River, N. Y.

Forty days later the basal metabolic rate was +11 per cent, and clinically she was much improved. A left hemithyroidectomy was done with satisfactory anesthesia and postoperative course.

CASE 11.—A man aged 40, first seen in September 1940, presented the typical picture of acromegaly and severe hyperthyroidism. Roentgenograms of the skull revealed an enlarged sella turcica. A large adenomatous goiter was present. The

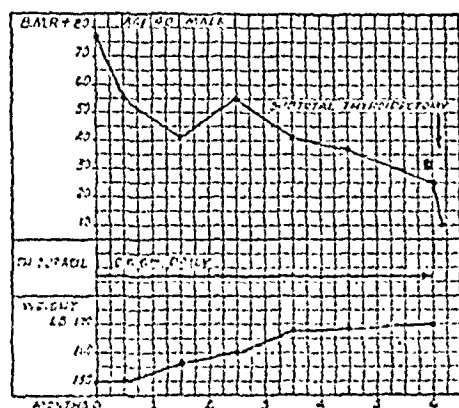


Chart 4.—Course in case 11.

basal metabolic rate was +41 and +43 per cent on two occasions, and the weight was 166 pounds (75 Kg.). He received Lugol's solution daily and five roentgen treatments to the sella turcica without improvement in his condition.

In July 1942 he received six roentgen treatments to the sella turcica without benefit. The basal metabolic rate at this time was +64 per cent.

He was readmitted to the hospital on May 24, 1943. Since his previous visit his condition had become progressively worse. The weight had decreased from 166 pounds (75 Kg.) to 150 pounds (68 Kg.). Weakness of the legs prevented him from working. There was pronounced tremor of the hands and extreme sweating. The basal metabolic rate was +72, +90 and +70 per cent on three occasions, with the pulse rate ranging from 100 to 116 beats per minute.

Thiouracil was begun, 0.6 Gm. a day, and he was discharged from the hospital. There was slow but definite improvement during the next six months (chart 4). The weight increased 20 pounds (9 Kg.) and the basal metabolic rate fell to +25 per cent. At this time there was only a slight tremor, little sweating and great increase in strength.

One hundred and seventy-one days after thiouracil was begun a subtotal thyroidectomy was undertaken, a large adenomatous goiter, which was partially substernal, being removed. The anesthesia course was satisfactory. Postoperatively the patient developed laryngeal edema which necessitated a tracheotomy, but his convalescence was not prolonged. At the time of his dismissal from the hospital his basal metabolic rate was +10 per cent, and two months later it was -10 per cent.

COMMENT

All 11 patients tolerated the drug. None showed any of the toxic manifestations which have been reported, such as agranulocytosis, dermatitis, fever and urticaria. Within seven to ten days after beginning treatment with thiouracil, patients notice a gain in strength and subsidence of nervousness and palpitation. The appetite diminishes, but a gain in weight occurs. Objectively there is lessening of stimulation and tremor as well as lessening of edema of the lids in patients in whom eye signs are present. The skin is less warm and moist. The pulse rate slows and the basal metabolic rate falls. When the patient has received iodine before thiouracil administration, there is a slower drop in the basal metabolic rate. Contrary to experience with Lugol's solution, the objective and subjective improvement precedes the drop in the metabolic rate; that is,

early in the course of treatment the patient appears better than the basal metabolic rate would indicate.

The thyroid gland remains the same in size and consistency. In primary hyperthyroidism the bruits and thrills over the superior poles persist. The failure of the primary hyperthyroid gland to involute causes the surgeon considerable technical difficulty because of extensive bleeding. Patient 8 (chart 1) received Lugol's solution for three weeks prior to surgery, with some involution of the thyroid gland, as indicated by decrease in the size of the gland and disappearance of the bruits and thrills. In spite of this change, the surgeon had some trouble with bleeding. The adenomatous goiter can be removed without difficulty.

The preoperative use of thiouracil in severe hyperthyroidism shortens the total time of treatment, reduces the hospital stay and limits the procedure to a subtotal thyroidectomy (chart 5). The average duration of treatment of severely toxic patients treated by Lugol's solution, in whom pole ligation with subsequent hemithyroidectomy is required, is 120 days, of which 55 days are spent in the hospital. When hemithyroidectomy is required, the average duration of treatment is 88 days, of which 35 days are spent in the hospital. With thiouracil treatment the average duration of treatment is 70 days, of which only 14 days are spent in the hospital.

CONCLUSIONS

Clinical observations indicate that thiouracil has a definite place in the preoperative management of the more toxic hyperthyroid patient. Since this drug can reduce the basal metabolic rate to normal, the patient is in an ideal condition for surgery. Treatment with thiouracil should be continued until the maximal effect is obtained, when subtotal thyroidectomy can be done without risk. Further experience in the use of Lugol's solution in conjunction with thiouracil will be necessary so that the gland is involuted and thereby made more suitable for surgical removal.

Eleven patients with severe hyperthyroidism were treated with thiouracil. The basal metabolic rate of all patients returned to a point at or near normal. Twenty days to six months of treatment was necessary to accomplish this result. Those patients with a considerably enlarged thyroid gland or who had received iodine before thiouracil treatment was begun required longer time to accomplish a satisfactory basal metabolic rate.

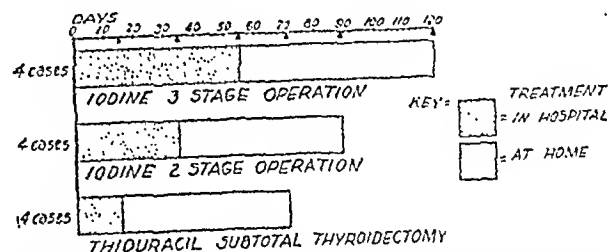


Chart 5.—Comparison of total treatment time, including hospital stay, of patients treated with iodine and those treated with thiouracil.

No toxic effects resulted following the daily dose of 0.6 Gm. The white blood cell and differential counts were carefully observed during the course of treatment, but no change occurred.

Patients with either primary hyperthyroidism or adenomatous goiter with hyperthyroidism responded equally well to thiouracil administration.

605 Commonwealth Avenue.

Clinical Notes, Suggestions and New Instruments

AN IMPROVED METHOD OF DEMONSTRATING OVA OF ENTEROBIUS VERICULARIS

FREDERICK H. VON HOF, M.D., EAST ORANGE, N. J.

The simplicity with which the ova of *Enterobius vermicularis* (pinworm) are recovered from the perianal area by the use of scotch tape is thought worthy of description.

The scotch tape is cut in strips about $2\frac{1}{2}$ inches long and $\frac{3}{8}$ inch wide. With the adhesive surface exposed, the tape is held over the closed end of a half inch test tube between the index finger and thumb. This is held firmly to the anus



Fig. 1.—Ova of *Enterobius vermicularis* under low power (X 56).

and rocked back and forth or from side to side to obtain a satisfactory smear. The tape is then applied to an ordinary glass slide, with the adhesive surface against the slide, and ironed out smoothly with the closed end of the test tube. The slide is then examined microscopically and it is not uncommon in positive cases to find groups of 3 to 6 ova and at times



Fig. 2.—Ova under high power (X 280).

many more (figs. 1 and 2) in single fields without long periods of searching. The regularity with which the ova are demonstrated by this method gives greater significance to negative smears.

75 Prospect Street.

The photomicrographs were taken by Dr. Arthur Abel, pathologist at Orange Memorial Hospital, Orange, N. J.

ACUTE PANCREATITIS COMPLICATED BY TETANY

WILLIAM TREVOR, M.D., AND LOWELL BROWN, M.D., NEW YORK

This case is reported, first, because it may be the only proved case of acute hemorrhagic pancreatitis complicated by low calcium tetany (the blood calcium level being 5.4 mg. per hundred cubic centimeters) and, second, because of the possible light it throws on some of the problems of a disease about which little is known.

REPORT OF CASE

L. V., a white woman aged 48, who entered the New York Post-Graduate Hospital on Oct. 14, 1943, suffered an attack of severe epigastric pain, eighteen hours before, radiating through to the back and to the left shoulder. She was nauseated and on two occasions had vomited thin greenish fluid.

Her past history was essentially noncontributory until thirty days before, at which time she had been awakened from sleep by burning epigastric pain, which subsided promptly after the drinking of a glass of warm milk. She was apparently well until eight days before admission, when she had another similar attack of severe epigastric pain. The pain this time, however, was more severe and radiated through to her back. There was no nausea or vomiting. After this attack she was again perfectly well until the day of admission. She noticed, however, that after the most recent attack of pain her stools had become pale yellow and seemed "light in weight," since they floated. On the surface of the feces and floating on the water were "shiny" globules. The stools were not foul, nor was there any change in bowel habit. There was no history of previous indigestion of any sort.

The patient was well developed and well nourished and appeared acutely ill. The blood pressure was 160 systolic and 104 diastolic, the temperature 100.6 F. and the respiratory rate 25. The pulse was strong, and the rate was 126. The significant observations were limited to the abdomen, which was exquisitely tender and spastic throughout, despite three $\frac{1}{4}$ grain (0.015 Gm.) doses of morphine sulfate administered during the preceding twelve hours.

Preparations were made immediately for exploratory laparotomy. When the peritoneal cavity was opened, it was found to be filled with a hemorrhagic serous fluid, while everywhere there were dotted uniformly miliary areas of fat necrosis. The pancreas was indurated in some portions and friable and necrotic in others, and there was widespread hemorrhage into the substance of the gland. The gallbladder and ducts were entirely normal.

Postoperatively the patient continued to complain of abdominal pain, though, in the light of the operative findings, her condition was felt to be remarkably good. Therapy consisted in transfusion of whole blood, infusion of dextrose in isotonic solution of sodium chloride and in distilled water and adequate sedation.

Shortly after noon on the second postoperative day it was noted that the patient's hands exhibited a typical carpal spasm and that a strongly positive Chvostek sign and peroneal jerk could be elicited. The general condition of the patient seemed, despite these findings, entirely unchanged.

Intravenous therapy with calcium gluconate was started. Within a few seconds after the administration of calcium the carpal spasm had completely disappeared and the confirmatory signs were considerably weaker.

Forty-eight hours postoperatively a 500 unit ampule of parathyroid injection was administered intramuscularly. Fifteen to thirty minutes later the patient's pulse suddenly became thready, respirations became labored and shallow and she appeared toxic and weak. The rectal temperature was 106.4 F., without chill. An infusion of 5 per cent dextrose in isotonic solution of sodium chloride was started, and in about an hour she again seemed fairly well. Her temperature, however, remained over 106 F. for the next twelve hours.

The following day the patient's condition seemed, if anything, somewhat improved, and there was no evidence of tetany.

From the New York Post-Graduate Medical School and Hospital. This case is reported through the courtesy of Dr. James J. Fleming, of the Department of Surgery of the New York Post-Graduate Medical School and Hospital.

However, because of the extreme hyperpyrexia, intravenous injection of sodium sulfadiazine was instituted. Her condition gradually became worse, and she died early on the fourth postoperative day.

The blood for the only determination of calcium made on this patient was taken about one hour before she expired. The level of 5.4 mg. per hundred cubic centimeters is especially remarkable in that by the time this blood was obtained the patient had already received 500 units of parathyroid injection intramuscularly and 4 ampules (10 cc. each) of 10 per cent calcium gluconate intravenously.

The conditions observed at autopsy two hours post mortem were essentially those seen at operation, the cause of the pancreatitis remaining obscure. Miliary areas of fat necrosis were seen in the abdomen, and they also involved the subpleural areolar tissues, which further emphasizes the generalized nature of this disease. Microscopic observations confirmed the diagnosis of acute hemorrhagic pancreatitis. The parathyroid glands were composed almost entirely of clear cells, the significance of which is not known. Anatomically it is of interest that in this case the common bile duct and the pancreatic duct had a common opening into the duodenum.

COMMENT

Edmondson and Fields¹ in 1942 reported a case of acute hemorrhagic pancreatitis complicated by tetany. Typical carpopedal spasm was present, but neither Trousseau's nor Chvostek's sign could be elicited. Alkalosis as a cause of tetany was ruled out by a carbon dioxide combining power of 47 volumes per cent, but no blood calcium or other antemortem blood determinations were carried out. The authors therefore concluded that the cause of the tetany remained uncertain.

In a review of the literature Edmondson and Fields found 3 other reported instances of tetany complicating acute pancreatitis.² In the first 2 cases determinations of calcium were not made, though it is not unlikely that the tetany was of the low calcium variety. In the third case the blood calcium level was 10.3 mg., and the tetany, therefore, was probably not of the low calcium variety. No other cases of tetany associated with acute pancreatitis have been reported, to our knowledge, since the paper of Edmondson and Fields.

Edmondson and Fields¹ have given evidence in a series of 12 cases of acute pancreatitis that lowering of the blood calcium level frequently occurs in this disease. It is known, moreover, that the pathognomonic areas of fat necrosis are sometimes found scattered widely throughout the body (as in the present case). Such areas represent fat which has been broken down to fatty acids and glycerin through the action of blood borne and lymphatic borne pancreatic lipase, the fatty acids then combining in great part with calcium to form insoluble soaps—the chief constituents of the white areas of "fat necrosis."³

A probable cause for low calcium tetany, then, in acute pancreatitis is, as first suggested by Edmondson and Fields, the sudden withdrawal of calcium for combination with the fatty acids released by lipolytic digestion. When fat necrosis is massive, it is obvious that the amount of calcium withdrawn from the blood may be considerable.

A second way in which the blood calcium may be depleted is suggested by the present case, in which steatorrhea occurred secondary to pancreatic deficiency. It is known that pancreatic insufficiency is associated with poor digestion of fat and the loss of large amounts of partially digested fat in the feces. Calcium is found in excessive amounts in such stools in combination with the fatty acids as insoluble soaps.⁴ Steatorrhea of any kind may produce a negative calcium balance, and in children tetany not infrequently occurs. In cases of pan-

creatitis, when the acute attack is superimposed on a chronic or subacute pancreatitis, steatorrhea may be one cause of a lowered blood calcium level.

CONCLUSIONS

1. A case of acute hemorrhagic pancreatitis complicated by tetany (blood calcium level, 5.4 mg. per hundred cubic centimeters) was observed.

2. A determination of the blood calcium level should be performed routinely in cases of acute pancreatitis. When calcium deficiency is present, replacement therapy is indicated.
303 East Twentieth Street.

PENICILLIN TREATMENT OF CAVERNOUS SINUS THROMBOSIS

VICTOR GOODHILL, M.D., LOS ANGELES

A 5 year old boy with acute fulminating bilateral cavernous sinus thrombophlebitis made a complete recovery when treated with penicillin,¹ after showing no response to sulfonamide-heparin therapy.

Thrombophlebitis of the cavernous sinus is one of those diseases the mortal aspect of which has cast an ominous shadow over infections of the face and head. Prior to the advent of sulfonamide therapy, reports of recovery and "cure" of this disease were rare.



Fig. 1.—Appearance before administration of penicillin.

When sulfonamides were first introduced, isolated cases of recovery began to appear. The addition of heparin to sulfonamide therapy further improved the statistics for survival in this previously highly fatal disease.

The present case is interesting in that (1) no response was noted following therapy with heparin and sulfathiazole and (2) prompt clinical response followed therapy with penicillin.

From the Departments of Otolaryngology, University of Southern California School of Medicine, and Childrens Hospital.

1. The penicillin was provided by the Office of Scientific Research and Development from supplies assigned by the Committee on Medical Research for clinical investigations recommended by the Committee on Chemotherapeutic and Other Agents of the National Research Council.

1. Edmondson, H. A., and Fields, I. A.: Relation of Calcium and Lipids to Acute Pancreatic Necrosis: Report of Fifteen Cases, in One of Which Fat Embolism Occurred, *Arch. Int. Med.* 69: 177-190 (Feb.) 1942.

2. Bertelsmann, R.: Postoperative Tetanie bei citriger Cholezystitis und akuter Pankreasnekrose, *Zentralbl. f. Chir.* 54: 324 (Feb. 5) 1927. Cibert, J., and Plauchu, M.: Pancreatite aiguë hémorragique et tétanie, *Lyon méd.* 152: 587-590 (Nov. 26) 1933. Amano, M., and Murata, M.: Tetanie bei akuten Abdominalerkrankungen, *Zentralbl. f. Chir.* 63: 694-698 (March 21) 1936.

3. Boyd, William: *Surgical Pathology*, ed. 5, Philadelphia, W. B. Saunders Company, 1942, p. 348.

4. Bodansky, Meyer, and Bodansky, Oscar: *Biochemistry of Disease*, New York, Macmillan Company, 1940, pp. 389-394.

REPORT OF CASE

History.—E. A., a 5½ year old Mexican boy, had a "pimple" on his forehead on Sept. 29, 1943. On October 1 he fell and struck his head in some sand. The "pimple" began to swell and became painful, and there was accompanying fever. On the following day his face and eyes became swollen. He was admitted to the Childrens Hospital on October 3.

Physical Examination.—On the day of admission, October 3, the child was acutely ill, in moderate distress and with a temperature of 104.6 F.

There was an open draining furuncle in the midfrontal region between the supraorbital region and the hair line. Both eyes were completely swollen shut by edema of the upper lids. There was slightly less edema of the lower lids. There was slight conjunctivitis but no chemosis; extraocular muscular function was perfect. The pupils were equal and regular and reacted to light and in accommodation. There was no proptosis. Fundus examination showed slight venous congestion. The frontal edema extended upward from the furuncle to about 2 cm. above the hair line.

There was no nuchal rigidity, and the reflexes were normal. There were no other significant conditions observed on physical examination.

Laboratory Observations.—X-ray study of the frontal sinuses and frontal bone showed no pathologic changes.

sodium chloride was started intravenously. The preheparin clotting time (Lee White venous method) was two and a half minutes. Within four hours after the administration of 200 mg. of heparin (22,000 units), the clotting time was eight minutes.

On October 6 the child appeared almost moribund. Shallow, rapid respirations developed and he became cyanotic. Examination of the chest revealed evidence of metastatic pulmonary suppuration. He was placed in an oxygen tent and given constant intravenous fluids. Both eyes were completely shut, and bilateral proptosis was present. There was pronounced frontal edema. Shortly after administration of heparin was begun, free bleeding began to occur from the lesion on the forehead. The dosage of sulfathiazole was increased to 4 grains (0.26 Gm.) per pound in twenty-four hours and maintained by the use of sodium sulfathiazole by the intravenous in addition to the oral route.

In spite of this high intake, the highest blood level obtainable for sulfathiazole was 4 mg. per hundred cubic centimeters. On October 8, in spite of a clotting time of twelve and one-half minutes obtained by the total administration of 600 mg. of heparin within three days, with constant free bleeding from the wound, the child became steadily worse. The temperature curve remained septic, and the boy was in a comatose state.

Through the kindness of Dr. Paul Hamilton it was possible for us to start the administration of penicillin on October 8.

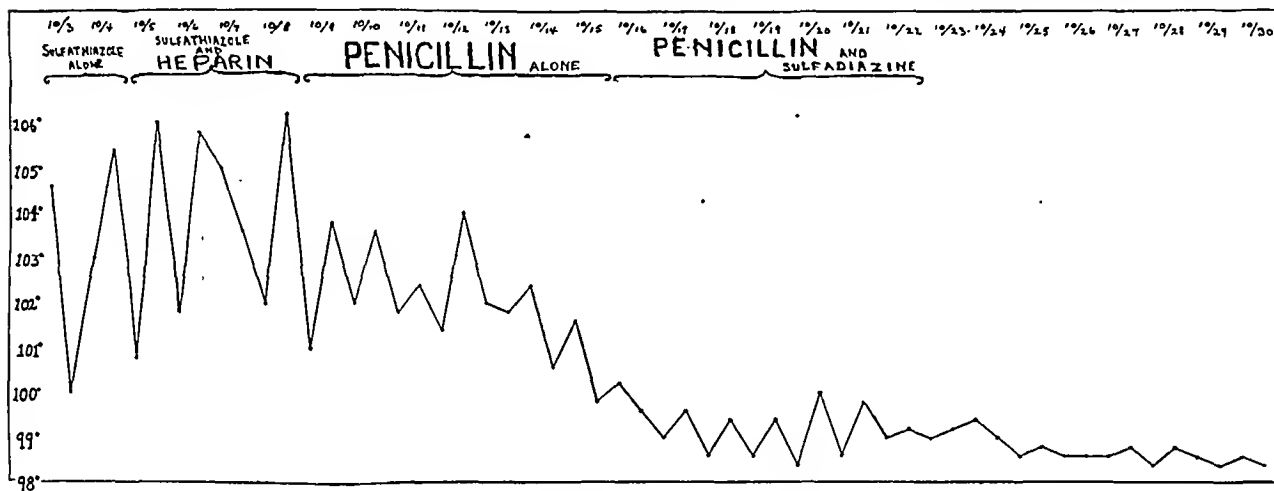


Fig. 2.—Temperature during period of treatment.

A blood count on October 4 revealed 31,500 leukocytes with 80 per cent neutrophils. The hemoglobin content was 82 per cent. The urine gave a 1 plus reaction for albumin.

Pus from the furuncle on culture yielded a coagulase positive nonhemolytic *Staphylococcus aureus*. Culture of blood taken on October 6 produced a growth of coagulase positive hemolytic *Staph. aureus*.

Diagnosis on Admission.—The diagnosis was furunculosis of the frontal region with probable thrombophlebitis of the frontal veins and superior branches of the facial veins.

Frank involvement of the cavernous sinus was not present on admission.

Course.—Immediately after the boy's admission oral administration of sulfathiazole in a dosage of 3 grains (0.2 Gm.) per pound (0.5 Kg.) in twenty-four hours was started. Hot compresses of a 1 per cent solution of sulfanilamide were applied continuously to the furuncle. On the second day, October 4, the frontal edema increased and began to involve the lower lids. The temperature curve was septic in character, reaching 106 F. The child became somewhat stuporous. On October 5 edema of the right lower lid became pronounced, and chemosis was noted in both eyes. Beginning engorgement of the retinal veins was apparent at the same time. Accordingly, it became obvious that the thrombophlebitic process was extending to the right and probably to the left cavernous sinus. In view of the lack of response to chemotherapy alone, a continuous drip of heparin in 5 per cent dextrose in isotonic solution of

Administration of sulfathiazole and heparin was discontinued, and 100,000 Oxford units of penicillin was given intravenously in a 5 per cent solution of dextrose within the first twelve hours. There was an apparent dramatic response to penicillin, with an immediate drop in temperature to 103 F. Within twenty-four hours the child began to improve. The septic temperature curve ceased immediately after the administration of penicillin. Within seven days of penicillin therapy, the child became afebrile. During this time the only treatment consisted of administration of penicillin and several transfusions of blood and of serum for supportive reasons. The dosage of penicillin was approximately 100,000 units per day for the first three days, with progressively smaller doses for a total of fourteen days. A total dose of 975,000 Oxford units was given.

On October 15, in spite of striking clinical improvement, with diminution of proptosis, the blood on culture still yielded hemolytic *Staph. aureus*. In spite of the normal temperature, sulfadiazine was started by mouth. On October 20 the blood was sterile on culture. The only unusual reaction noted to penicillin was a generalized urticaria, which appeared on October 14 and lasted two days. On October 13 a left foot drop was noted.

Ophthalmoscopic consultation by Dr. Robert Hare on October 19 revealed subsiding bilateral proptosis, dilated superficial veins, ptosis of the left upper lid, total left external ophthalmoplegia, partial right external ophthalmoplegia, pallor of both

disks, bilateral macular edema and bilateral engorgement of the retinal veins. Dr. Hare concluded that the ocular conditions represented the end results of cavernous sinus thrombosis. There was apparently no vision at all in the left eye, but the patient was able to distinguish objects with the right eye at a distance of 2 feet.

Within ten days of penicillin therapy the frontal edema disappeared completely and the furuncle healed. On November 2 the patient was discharged, in excellent general physical condition with the exception of left foot drop, complete ptosis of the left upper lid, bilateral external ophthalmoplegia and early bilateral atrophy of the optic nerve.

The patient has been followed in the clinic, and when last seen, on Jan. 7, 1944, the left ptosis had disappeared completely and the right eye had almost perfect muscle function. The right disk was normal, and the left disk showed much less pallor.

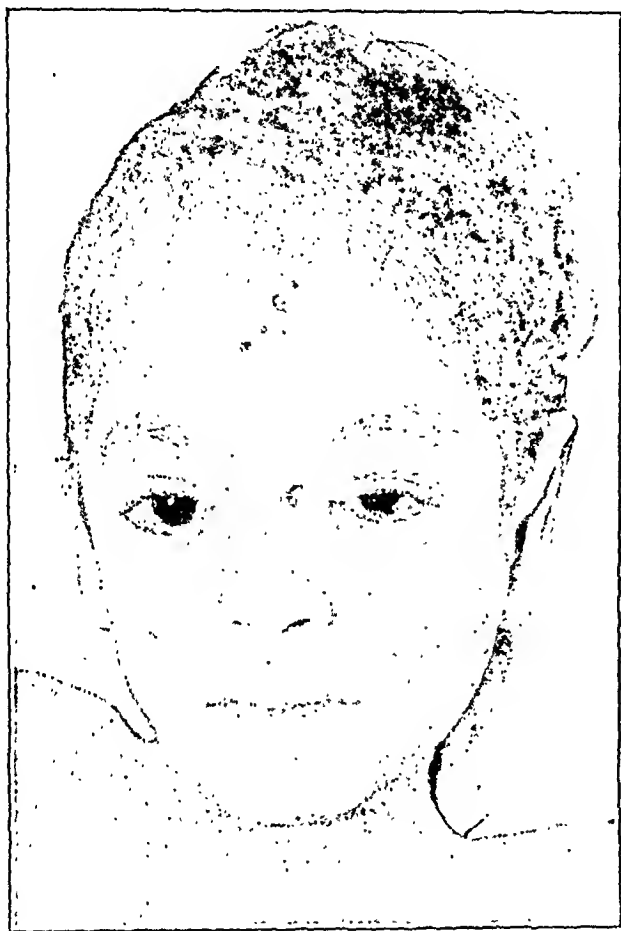


Fig. 3.—Five days after treatment with penicillin.

COMMENT

1. It was quite likely from a clinical standpoint that we were dealing with thrombophlebitis of (a) the cavernous sinuses and (b) the frontal veins, with possible involvement of the cranial diploic veins, as well as the sagittal (superior longitudinal) sinus.

2. Large doses of heparin (sufficient to decrease the clotting time from two and a half to twelve and a half minutes as well as to reduce the hemoglobin content from 82 to 48 per cent) were of no avail when used for seven days with large doses of sulfathiazole (4 grains per pound in twenty-four hours).

3. The administration of penicillin intravenously was followed within twelve hours by a drop in temperature and by a clinical response.

4. At the time of writing, three months later, the patient is well except for partial ophthalmoplegia and optic neuritis.

SUMMARY

A 5 year old child was cured of bilateral cavernous sinus thrombophlebitis. Recovery followed the administration of penicillin intravenously after preliminary treatment with heparin and sulfathiazole had been of no avail.

676 South Westlake Avenue.

THE USE OF SULFATED OIL AS A SKIN CLEANSER IN THE MANAGEMENT OF ACNE VULGARIS

JACOB H. SWARTZ, M.D., AND IRVIN H. BLANK, Ph.D.
BOSTON

It is unlikely that any one single factor is the cause of acne vulgaris. It is quite apparent, however, that there is almost always an overactivity of the sebaceous glands, which produces an increase in the amount of oily secretion on the surface of the skin of most patients. A well accepted principle in the treatment of acne vulgaris is the regular and relatively complete removal of this oily secretion from the cutaneous surface.

During recent years, various cleansing agents other than soap have been used for cleansing the skin. The sulfated oils¹ have been used primarily in the management of cutaneous diseases for which soap is contraindicated.² The term sulfated oil applies to any oil, fat, fatty acid or wax of animal or vegetable origin which has been "solubilized" by treatment with concentrated sulfuric acid. The sulfated oils mix well with both oil and water. They are efficient emulsifying agents, and it is thought that they cleanse the skin by means of emulsifying the oils on the cutaneous surface so that these oils can then be easily removed by rinsing with water. This cleansing is accomplished without the formation of lather.

TABLE 1.—Types of Acne Vulgaris

Lesions	Type of Acne Vulgaris
Oily and "muddy" complexion.....	Juvenile
Comedones.....	
Milia.....	
Few papulopustules.....	Papulopustular
Many papulopustules.....	
Few scars.....	Indurated
Sebaceous cysts.....	
Many scars.....	

In a discussion of a paper by Lane and Blank³ on the use of sulfated oil as a detergent in a dermatologic ward, at the 64th annual meeting of the American Dermatological Association in 1941, Dr. McCarthy and one of us (J. H. S.) each stated that he had used the sulfated oils for cleansing the skin of patients with acne vulgaris. During the past four years we have prescribed a detergent containing 25 per cent sulfated oil, 25 per cent mineral oil and 50 per cent water⁴ to over 400 patients with acne vulgaris in private practice and also to many clinic patients. Since the purpose of recommending sulfated oil is to bring about better cleansing of the skin, and since the sulfated oil is used in a different way than is soap, each patient should be told just how the sulfated oil should be used. We usually recommend that a small amount of the sulfated oil be poured into the palm of the left hand and then thoroughly rubbed over the unmoistened skin of the face with the fingers of the right hand in the same manner as when applying a cleansing cream. This "massaging" of the face with the oil should be carried on for from one to several minutes and be followed by thorough rinsing with warm water. Since the sulfated oils are completely miscible with water, they will be removed by the water and will carry with them the natural oil on the cutaneous surface, cosmetics and dirt. At the outset it is suggested that the skin be cleansed in this manner three times daily. The frequency of cleansing may be decreased as the skin becomes less oily. The patients easily adjust themselves to the use of a cleansing agent which

From the Department of Dermatology, Harvard Medical School, and the Massachusetts General Hospital.

1. Formerly referred to as "sulfonated oils."

2. Lane, C. G., and Blank, I. H.: Sulfonated Oil as a Detergent for Diseases of the Skin, *Arch. Dermat. & Syph.* 43: 435-443 (March) 1941.

3. Lane, C. G., and Blank, I. H.: Sulfonated Oil as a Detergent: Its Use in a Dermatologic Ward, *Arch. Dermat. & Syph.* 44: 999-1008 (Dec.) 1941.

4. This preparation is known as Acidolate.

does not lather, if they are told in advance not to expect a lather.

A sulfated oil is not a single chemical compound. Its composition will depend on the type of oil which has been sulfated and the method used to prepare the oil. In general the sulfated oils have been found to be nonirritating detergents, but it appears that, with certain processes of manufacture,

TABLE 2.—Lotion for Patients with Light Complexion

	Gm. or Cc.
Calamine.....	4.0
Zinc oxide.....	8.0
Phenol.....	2.0
Glycerin.....	8.0
Spirit of camphor.....	4.0
Distilled water.....ad	240.0

by-products of sulfation may be formed and these by-products may irritate the skin. Up to the present time we have seen no patient with acne vulgaris in whom the sulfated oil has caused a dermatitis of the face.

It is important to differentiate the sulfated oils from the sulfur soaps that have been used in the treatment of acne vulgaris. There is little or no free sulfur in the sulfated oils. The sulfur is chemically combined in the form of the sulfate group and cannot act as free sulfur. So far as can now be determined, the sulfated oil acts solely as a cleansing agent. When the action of sulfur is desired in the treatment of acne vulgaris, it is used in some other form of therapy. The choice of therapy will depend on the type of acne vulgaris being treated.

Acne vulgaris may be subdivided into three types, depending on the nature of the lesions, as is shown in table 1.

For all three types of acne vulgaris the following is recommended: (1) thorough cleansing with sulfated oil three times daily followed by the application of borated alcohol each time, (2) mechanical removal of comedones and (3) a diet. The cleansing technic has been described. The borated alcohol is prepared by mixing equal parts of saturated aqueous boric acid solution and 70 per cent ethyl alcohol. The patient is shown how to remove the comedones with a comedo extractor which has been sterilized by boiling. The patient should be instructed to remove comedones twice a week. Thorough cleansing with the sulfated oil and the application of borated alcohol should precede comedo removal, and the borated alcohol should also be applied after removal. Chocolate, nuts and cooked fats are eliminated from the patient's diet.

With this therapy the juvenile type of acne vulgaris usually shows a satisfactory response. Fewer comedones seem to form, and those which do form are sometimes removed by the cleansing alone.

For the papulopustular type of acne vulgaris, ultraviolet irradiation and the nightly use of a shake lotion are often added to the aforementioned therapy. For patients who have light complexions or for those whose skin is not very oily, the lotion given in table 2 is prescribed.

TABLE 3.—"Drying" Lotion

	Gm. or Cc.
Calamine.....	2.0
Zinc oxide.....	4.0
Phenol.....	1.0
Spirit of camphor.....	8.0
Precipitated sulfur.....	8.0
Alcohol.....	120.0
Distilled water.....ad	240.0

For patients who have a dark complexion and for those whose skin is quite oily, a more "drying" lotion is prescribed (table 3).

This type of acne vulgaris seems to respond more satisfactorily to a combination of the shake lotion and the sulfated oil cleansing than to a combination of the same shake lotion and soap cleansing.

Roentgen therapy is most frequently used for the indurated type of acne vulgaris and especially when response to other types of therapy has been slow. Patients are always cautioned against the use of sulfur shake lotions and other irritating

preparations when roentgen therapy is being used. Following roentgen therapy, sulfated oil cleansing and the lotion mentioned in table 2 are recommended.

Endocrine therapy is rarely used and only for those patients who seem to present some definite indication of an endocrine imbalance.

SUMMARY

Sulfated oils have been used successfully for cleansing the skin of patients with acne vulgaris.

In the juvenile type of acne vulgaris, such a cleansing method is usually sufficiently "drying" so that shake lotions are unnecessary. Borated alcohol may be used. A diet which eliminates chocolate, nuts and cooked fats is recommended. The patient is shown the correct method for the removal of comedones.

In the papulopustular type of acne vulgaris, shake lotions and ultraviolet therapy are also used.

For the indurated type of acne vulgaris, roentgen therapy is suggested, particularly if response to other types of therapy has been poor.

371 Commonwealth Avenue—Harvard Medical School.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PURSUANT TO THE ACTION TAKEN BY THE COUNCIL AT ITS ANNUAL MEETING (J. A. M. A. 121:838 [MARCH 13] 1943) THE COUNCIL IS WITHHOLDING FROM THIS COLUMN STATEMENTS ON TESTS AND STANDARDS, ACTIONS, USES AND DOSAGE OF NEWLY ACCEPTED DRUGS WHICH MIGHT BE OF INTEREST TO THE ENEMY. THUS, SUCH STATEMENTS FOR SULFAMERAZINE, SULFAMERAZINE SODIUM, SULFAPYRAZINE AND SULFAPYRAZINE SODIUM ARE OMITTED UNTIL A FUTURE DATE. THEY WILL APPEAR IN THE COUNCIL PUBLICATION NEW AND NONOFFICIAL REMEDIES AND MAY BE OBTAINED FROM THE COUNCIL OFFICE ON REQUEST.

AUSTIN E. SMITH, M.D., Secretary.

SULFAMERAZINE.—4-Methyl-2-sulfanilamidopyrimidine. —Sulfamethyldiazine. —4-Methyl-2-sulfanilylaminopyrimidine. —*p*-Amino-N-2-(4-methylpyrimidyl) benzenesulfonamide. — $C_{11}H_{12}N_4O_2S$ (M. W. 264.30).

LEDERLE LABORATORIES, INC., PEARL RIVER, N. Y.

Sulfamerazine Powder (Unsterile): 114 and 454 Gm. packages.

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Sulfamerazine: bulk, 114 Gm. (unsterile).

Sulfamerazine Chemical Reagents (powder): 1 Gm. vial.

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SULFAMERAZINE SODIUM.—The anhydrous sodium salt of 4-methyl-2-sulfanilamidopyrimidine. — $C_{11}H_{11}N_4O_2SNa$ (M. W. 286.29).

LEDERLE LABORATORIES, INC., PEARL RIVER, N. Y.

Ampul Solution Sodium Sulfamerazine 25% W/V: 10 cc.

SHARP & DOHME, INC., PHILADELPHIA

Sterilized Sodium Sulfamerazine: 5 Gm. vial.

SULFAPYRAZINE.—2-Sulfanilamidopyrazine. —2-Sulfanilyl aminopyrazine. —*p*-Amino-N-2-pyrazinyl benzenesulfonamide. — $C_{10}H_{10}N_4O_2S$ (M. W. 250.27).

MEAD JOHNSON & COMPANY, EVANSVILLE, IND.

Tablets Sulfapyrazine: 0.5 Gm.

SULFAPYRAZINE SODIUM.—The monohydrated sodium salt of 2-sulfanilamidopyrazine. — $C_{10}H_9N_4O_2S.Na.H_2O$ (M. W. 290.28).

MEAD JOHNSON & COMPANY, EVANSVILLE, IND.

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SATURDAY, MAY 6, 1944

THE ANNUAL SESSION

The program for the annual session of the American Medical Association, which will be held in Chicago June 12-16, indicates the great advance that has been made by medical science in recent years. Panel discussions on tropical medicine, chemotherapy, plasma and neuropsychiatry, already arranged for the general scientific meetings, emphasize these chief lines of interest.

The very first paper scheduled for the Section on Practice of Medicine deals with penicillin. Additional manuscripts cover current topics, such as rheumatic fever, and there is a panel discussion on vitamins, amino acids and enzymes. In the Section on Surgery the use of surgical techniques in hypertension and new techniques related to methods of suture are featured. The opening session of the Section on Obstetrics is concerned with problems of pregnancy, but attention is given also to new studies with hormones and to complications related to the bladder. A symposium on penicillin features the Section on Laryngology, and one on rheumatic fever appears in the Section on Pediatrics. Unusual is the symposium on the abuse of rest in the treatment of disease, scheduled for the Section on Experimental Medicine. Prominent in the program on nervous and mental diseases is the panel discussion on operational fatigue in combat air crews. All the newer investigations in the intensive and modern treatment of syphilis are included in a full session of the Section on Dermatology and Syphilology; in these discussions the investigators who have been doing most of the work for the Office of Scientific Research and Development are cooperating. New attitudes in industrial medicine and a consideration of the relocation of physicians in the postwar period are listed for the Section on Preventive and Industrial Medicine and Public Health. In the Section on Urology the new advances in the treatment of cancer of the prostate are noted, and in the Section on Orthopedic Surgery space is provided for the report of the committee which is making a joint investigation of the Kenny technic.

The Section on Anesthesiology gives opportunity to hear the last word on continuous caudal analgesia. Especially interesting also are the sessions of the Section on Miscellaneous Topics, devoted on this occasion to the interests of the general practitioner.

The Scientific Exhibit and the other usual features of the annual session will be up to the standard of peacetime and will be highlighted as well by the interests associated with the needs of war. Attention is called to the motion picture theater, which will offer continuously from the first day the latest demonstrations utilizing visual education.

A specially arranged feature for this session is the war meeting planned for Wednesday night, June 14, at the Medinah Temple. This program will include not only the Surgeons General and other distinguished representatives of our own armed forces but also representatives of some of the United Nations.

The sessions of the House of Delegates of the American Medical Association will begin on Monday, June 12. Already there are indications that the House of Delegates will give its consideration to many problems of immediate importance to the practice of medicine now and in the postwar period.

On page 43 of this issue appears an invitation to members of the American Medical Association to visit the headquarters, which is in easy reach of the hotels in Chicago. The picture on page 42 indicates only slightly the scope of the innumerable activities that are carried out in the headquarters office for the advancement of medical science in the interest of the physician and of the public health. Physicians will find it well worth their while to take some portion of the time so much in demand during the week of the session to acquaint themselves fully with the various offices and bureaus in the headquarters office and to learn at first hand about the various services that are available.

THE SYNTHESIS OF GLYCOGEN IN THE TEST TUBE

Reproduction in the test tube of complicated biologic reactions is generally considered a necessary step in the understanding of complex living phenomena. For example, the hydrolysis of protein and conversely the synthesis of polypeptides from amino acids in vitro are landmarks in our understanding of protein metabolism. The same is true of carbohydrate metabolism and particularly the process by which glycogen is formed (glycogenesis) and broken down (glycogenolysis). The chemical reactions by which glycogen is broken down to form glucose have been known for some time. First is an interaction with phosphoric acid, called phosphorylation, under influence of the enzyme phosphorylase, which produces glucose-1-phosphate. This is then converted to glucose-6-phosphate by a conversion enzyme and finally to glucose. These reactions have

been carried out in the test tube with dialyzed extracts of muscle and other tissues containing the appropriate enzymes.

Many attempts were made to synthesize glycogen by making the first step in the reaction described proceed in a reverse direction, that is by starting with glucose-1-phosphate and producing glycogen plus inorganic phosphate. The successful test tube synthesis of glycogen in this way was described in a preliminary note several years ago by Dr. Carl F. Cori and his co-workers¹ at the Washington University Medical School. In this communication due credit was given to the concurrent publication of Kiessling,² who reported the same observation. However, the St. Louis investigators have described the kinetics and a detailed description of their research in a series of papers which has just appeared in a recent number of the *Journal of Biological Chemistry*.³

The solution of the problem of glycogen synthesis followed painstaking efforts which finally led to the purification of the crude tissue extracts by a variety of procedures and the successful isolation of the phosphorylating enzyme in crystalline form. The crude extracts did not work because they contained also the conversion enzyme, which of course continued the process of glycogenolysis, thus preventing glycogenesis. Once this enzyme was freed from other enzymes and purified, it was possible to produce glycogen in vitro from synthetic glucose-1-phosphate with the liberation of inorganic phosphate in a simple and striking manner. Indeed, glycogen appeared within six minutes; moreover, 91 per cent of the calculated amount of the polysaccharide could be demonstrated in a short time. While adenylic acid was first thought necessary as a co-enzyme, it was later shown to be merely a prosthetic group attached to one of the phosphorylases.

The enzymatic synthesis in vitro of the polysaccharide glycogen from simple synthetic material was thus first demonstrated and indeed proved to be quite simple with many fundamental implications. First it showed that the same enzyme, phosphorylase, brings about both the last step in glycogen synthesis and the first step in glycogen hydrolysis. This demonstrates a well known phenomenon in biologic reactions, namely that the same enzyme may be active in opposite directions, depending on the presence or absence of other enzymes. In this case the reaction of synthesis was achieved by removing one of the enzymes concerned with a later step in glycogen breakdown.

Enzyme reactions are at the very heart of all biologic processes; only by knowledge of their mechanism will a true understanding be reached as to the real behavior of all vital mechanisms. This applies to phenomena of disease as well as of health. While most of this research seems remote from the bedside, it is true only

because this type of investigation is in the vanguard of scientific advance. Patients of the future will probably enjoy in a gratifying way the results of enzyme research which may well enable the physician by an injection of appropriate catalysts so to alter the biologic mechanisms as to counteract many of the deleterious effects of disease or to stimulate the beneficial reactions necessary for life and health.

AGE AND CARCINOGENIC EFFECT OF ESTROGENS IN MICE

The relation between age and the incidence of cancer is only partially understood. Crossen and Hobbs found that 60 per cent of women with uterine carcinoma still continued to menstruate after the age of 50 years, while among a large number of women not affected by uterine carcinoma menstruation occurred in only 15 per cent at this late age. These observations support the conclusion that the long continued action of ovarian hormones may be of significance in the origin of carcinoma, not only in the mammary gland, the cervix and the vagina, but also in the fundus of the uterus. Crossen and Loeb¹ injected into older mice 100 or 200 rat units of estradiol benzoate weekly. These mice belonged to three strains with a low tendency toward formation of mammary carcinoma. The period of the injections ranged between two and one-half and seven and three-fourths months. The ovaries of these animals were studied in serial sections, while many sections were made through various parts of the vagina, the cervix, the uterus and the mammary glands. The microscopic studies revealed the following types of stimulation under the influence of ovarian hormones: (a) There was first intensification of normal growth processes, especially in the epithelium of the vagina and cervix, which did not return to the resting stage in these older experimental mice in contrast to older control mice. (b) Abnormal growth processes that had not as yet reached the pre-cancerous or the cancerous stage were represented by lateral expansive and invasive growth of the vaginal and cervical epithelium, by invasive growth of the uterine glands, which perforated the muscularis, by the peculiar papillary growth processes noted in some areas of the uterine surface, epithelium and glands in certain mice, and by the proliferative processes found in the peritoneal endothelium of some mice and, lastly, in the ovaries of older mice by the growth of ductlike structures which were derived from proliferating germ epithelium of medullary ducts. (c) Precancerous processes were observed in the mammary glands and in the vagina and cervix. In the former they were the result of intensification of the normal growth processes, and in the vagina and cervix they were apparently super-

1. Cori, C. F.; Schmidt, G., and Cori, G. T.: *Science* **89**: 464, 1939.

2. Kiessling, W.: *Biochem. Ztschr.* **302**: 50, 1939.

3. Cori, C. F., and others: *J. Biol. Chem.* **151**: 21-63 (Nov.) 1943.

1. Crossen, R. J., and Loeb, Leo: Effect of Long Continued Administration of an Estrogen on the Sex Organs of Mice Which Have Passed the Reproductive Period, *Arch. Path.* **37**: 202 (March) 1944.

imposed on the growth processes leading first to invaginations of the surface epithelium and then to the production of solid epithelial processes leading into the stroma. The last mentioned changes may lead to cancerous processes; these were found in the older experimental mice only in the mammary gland, but they may be expected to occur also in the vagina and cervix.

Apparently different kinds of tissues, in the same individual or species, respond to the same kind of stimulation with different degrees of intensity. This differential responsiveness is due not to unequal distribution of stimulating substances in the vagina and cervix and in the mammary gland but to the inherence in each of these tissues of its own characteristic mode of response to these stimuli. The mammary gland is the most responsive. There follow in decreasing order the epithelium of the vagina and cervix and, last, the various uterine structures.

The authors conclude that these investigations do indicate that the tissues in older animals are more liable to cancerization than those in younger animals.

On the contrary, the decrease in growth energy noted with advancing age should counteract the tendency to cancerous change. Likewise, the denser nature of the stroma by interfering with the nourishment of the tissues should primarily have such an inhibiting effect; yet indirectly these conditions might favor the production of cancer. The authors believe that the main cause for the greater incidence of cancer in old animals consists in the accumulation in certain tissues with advancing age of stimuli to growth and in the sensitization which may occur as a result. In addition to this accumulation of growth stimuli in the form of hormones there may be a development of secondary nonhormonal factors which induce growth processes, and the association of the secondary with the primary hormonal stimuli may in certain instances intensify the proliferative processes which ultimately lead to cancer. As such secondary processes the authors have recognized the long continued removal of the upper layers of the vaginal epithelium by mechanical means and the chronic inflammatory processes in the uterus, which may help to induce papillary and invasive proliferation of the peritoneal endothelium. The authors believe that the mechanism by which these stimuli lead to cancerization, in all probability, consists in the production within the affected cells of intermediate products, autocatalytically propagating substances, which are the direct cause of increased cell activities and ultimately of cancer. These stimuli would therefore induce chain processes which would give rise to the essential growth factors leading to cancerization. The tissues of older and those of younger organisms seem to differ only quantitatively in their reactions as far as growth processes and cancerous processes are concerned.

Current Comment

FOOD AND DRUGS COMMISSIONER RESIGNS

Information from Washington indicates that Mr. Walter G. Campbell, Commissioner of Food and Drugs, of the Food and Drug Administration, which is a division of the Federal Security Agency, resigned his position on April 29. Thus far official publicity has not appeared indicating any reason for the resignation or the future action to be taken in the administration of this division of the federal government. The Food and Drug Administration is, however, of tremendous interest to the medical profession, since it is charged with the enforcement of the Food, Drug and Cosmetic Act, Tea Act, Import Milk Act, Caustic Poison Act and the Filled Milk Act. Its activities are concerned with the promotion of the purity, standard potency, truthful and informative labeling of food, drugs and cosmetics. It is charged also with determining the purity of such materials as are utilized by the armed forces. Problems related to the advertising of these commodities are a function of the Federal Trade Commission. In his position as Commissioner of Food and Drugs Mr. Walter G. Campbell has made an enviable record—respected by every one for his justice, courage and scientific attitudes. He has been aided in his work by a competent staff, including the associate commissioner, Mr. Paul B. Dunbar, and a fine group of chemists and physicians. It would be unfortunate if any considerations might prevail that would interfere with the maintenance of this important agency on a standard any less than that which it has had under Mr. Campbell's direction or if the continuity of its services should be allowed to lapse in any way during the period of change.

INTELLIGENCE AND SEASON OF CONCEPTION

An association between season of birth, or conception, and intelligence has been repeatedly postulated. Fitt,¹ for example, selected for contrast (with suitable reversal in the Southern Hemisphere) the birth months May to October corresponding to the conception months August to January as the winter children, and the birth months November to April, corresponding to the conception months February to July, as the summer children. It has been shown conclusively, according to Roberts,² that children whose time of conception is centered in the winter months are on the average somewhat more intelligent than those conceived during the other half of the year. Two explanations of the difference are suggested: first, that the season of conception influences intelligence or, second, that intelligence influences conception. A simple way of distinguishing between the two possibilities is available, Roberts says. Children born of the same parents can be compared, i. e. winter children with their summer brothers or

1. Fitt, A. B.: *Seasonal Influence on Growth, Function and Inheritance*, Wellington, New Zealand, and London, Oxford University Press, 1941.

2. Roberts, J. A. Fraser: *Intelligence and Season of Conception*, Brit. M. J. 1: 320 (March 4) 1944.

sisters. A second line of inquiry is to determine the number of sibs of comparable groups of winter and summer children. Should it be intelligence which influences season of conception, winter children not only will be more intelligent but will have fewer brothers and sisters. A statistical analysis along these lines throws interesting light on the subject. When winter children were compared with their summer brothers and sisters, measured by the advanced Otis intelligence test, the differences vanished. It was also shown that while winter children differ from summer children in intelligence they differ even more in having fewer sibs. Thus, according to Roberts, the observed association between the time of conception and intelligence is to be ascribed not to seasonal influences on the mother or the developing child but to a tendency for the children of more intelligent parents to be conceived slightly more often in winter, those of less intelligent parents slightly more often in summer. Fascinating as this statistical acrobatics may be, it is not necessary for any one to suffer needless alarm if their birth dates happen to classify them as summer children!

MUSCLE SPASM IN POLIOMYELITIS

The Kenny concept and treatment of poliomyelitis have aroused special interest in the muscle spasm said to be characteristic of the disease and against which that treatment is especially directed. The muscles in spasm are painful on stretch or pressure, and the condition may lead to dysfunction and deformity. Spasm is claimed to be present in every case, but there appears to be no direct relation between it and motor paralysis. The mechanism of muscle spasm in poliomyelitis is now the subject of active investigation.¹ Results at hand agree that the spasm is not due primarily to any process within the muscle but that it is a reflex phenomenon. On the basis of their own work and after consideration of recent research in the physiology of the spinal cord by Lloyd and others, Bouman and Schwartz conclude that in poliomyelitis impulses from higher centers inhibitory of muscular contraction "are blocked in very close proximity to the motor neurons." Kabat and Knapp report that in acute and subacute poliomyelitis spinal anesthesia by means of procaine "led to relaxation of muscle spasm to a marked extent." In 1 case the intravenous injection of beta-erythroidine hydrochloride was followed by definite relaxation of muscle spasm and of pain on passive motion. This drug blocks the myoneural junction. These investigators also found that, in the dog, temporary arrest of circulation in the spinal cord caused changes in the internuncial pathways and resultant muscle spasm. Finally, they report that in some 68 cases of poliomyelitis an internuncial cord lesion was found almost constantly and that in 26 of these cases the internuncial lesion was accompanied by "relatively normal anterior horn cells." Measurements of chronaxia did not give any evidence of relation between muscle spasm and damage to the neurons in

the anterior horns. These brief references to current investigations of poliomyelitis spasm show that significant results are being obtained. The spasm is apparently neurogenic and due to the blocking of reflexes by lesions in the gray matter of the cord; also the spasticity is influenced by anesthesia and by drug action. These results indicate progress, and we look forward hopefully for scientific contributions to the treatment of the muscle spasm of poliomyelitis.

FAINTING DURING BLOOD DONATION

Fainting which may occur in blood donors during the bleeding procedure does not have a serious significance. The symptoms are distressing nevertheless. In four blood centers in England¹ the incidence of fainting was relatively small averaging about 5.5 per cent of the total number of over 5,000 donors. The data collected from 362 blood donors who fainted during the bleeding procedure were studied in comparison with those of 335 unselected donors who did not exhibit subjective or objective symptoms. Evidence was not obtained that factors such as age, occupation, length of wait at the center before bleeding, difficulties in bleeding, length of time since the last meal and presence of menstruation assumed any contributory role in producing or facilitating fainting. Sex appears to be a relatively significant factor in influencing the incidence of fainting. Symptoms were more frequent in women, especially in single women, than in men. Actually the only finding susceptible of control was that a high proportion of donors who fainted gave a history of fainting at previous bleedings or on some other occasions not related to blood donation. This suggests that, whenever possible, these persons should not be used as blood donors. Better and more complete knowledge of the neurocirculatory disturbance and reactions elicited by bleeding is necessary in order to devise controlling measures for the associated symptoms.

SALIVARY AMYLASE AND DENTAL CARIES

A clear relationship between salivary amylase and the incidence of dental caries is reported by Turner and Crane¹ of the Forsyth Dental Infirmary, Radcliffe College. In order to establish this relationship, the rate of starch hydrolysis by saliva was determined under standard test conditions. In persons without dental caries this hydrolysis required approximately forty-five minutes for completion. The saliva of those with four to six cavities completed the hydrolysis within nineteen minutes, those with ten to twelve cavities within seven minutes, and those with twenty to thirty cavities in less than two minutes. Without exception the rate of starch hydrolysis increased in direct parallelism with the number of cavities. Of 51 carefully studied cases not 1 was found in which the salivary starch splitting rate was an exception to this rule. The origin and nature of this qualitatively or quantitatively increased buccal amylolytic enzyme is now under investigation.

1. Bouman, H. D., and Schwartz, R. P.: The Degree, the Extent and the Mechanism of Muscle Spasm in Infantile Paralysis, New York State J. Med. 44: 147 (Jan.) 1944. Kabat, H., and Knapp, M. E.: The Mechanism of Muscle Spasm in Poliomyelitis, J. Pediat. 24: 123 (Feb.) 1944.

1. Fainting in Blood Donors, Brit. M. J. 1: 279 (Feb. 26) 1944.
1. Turner, N. C., and Crane, E. M.: Science 99: 262 (March 31) 1944.

MEDICINE AND THE WAR

ARMY

FACILITIES PROVIDED FOR TISSUE PATHOLOGY IN U. S. ARMY

The War Department recently issued the Technical Bulletin of Medicine number 19 concerning the facilities provided for tissue pathology in the U. S. Army. As laboratory officers with specialized training in histopathology are not available for assignment to all hospital laboratories, the following plan has been organized and developed by the Curator, Army Medical Museum, Washington 25, D. C., to provide expert service for all army installations. Large laboratories have been selected as "histopathologic centers." Specially trained personnel will be assigned to these centers, and the laboratories will be supplied with the facilities required for this work.

The following histopathologic centers have been selected:

Service Command	Location of Center
First	Lovell General Hospital, Fort Devens, Massachusetts
Second	Second Service Command Laboratory, 1309 Federal Office Building, 90 Church Street, New York
Third	Valley Forge General Hospital, Phoenixville, Pa.
Fourth	(a) Lawson General Hospital, Atlanta, Ga. (b) Stark General Hospital, Charleston, S. C. (c) Thayer General Hospital, Nashville, Tenn.
Fifth	Billings General Hospital, Fort Benjamin Harrison, Indiana
Sixth	Sixth Service Command Laboratory, Fort Sheridan, Illinois
Seventh	(a) O'Reilly General Hospital, Springfield, Mo. (b) Fitzsimons General Hospital, Denver
Eighth	(a) Brooke General Hospital, Fort Sam Houston, Texas (b) William Beaumont General Hospital, El Paso, Texas (c) Army and Navy General Hospital, Hot Springs, Ark.
Ninth	(a) Hoff General Hospital, Santa Barbara, Calif. (b) Letterman General Hospital, San Francisco (c) Barnes General Hospital, Vancouver, Wash. (d) Bushnell General Hospital, Brigham City, Utah

Medical laboratories ordinarily will use the histopathologic center in their own service command which is most accessible to them, but in exceptional and urgent cases and if more convenient from the standpoint of transportation they may submit their material to the nearest general hospital. General hospitals which have adequate professional and technical equipment to complete examinations may send their necropsies and selected surgical material direct to the Army Medical Museum. The histopathologic centers will forward to the Army Medical Museum all completed necropsies and such surgical cases as have possible future administrative or "follow-up" value, particularly tumors and those specimens requiring final or confirmatory diagnosis. Facilities for consultation in all fields of tissue pathology have been established by the Army Medical Museum. Specimens will therefore not be submitted primarily to other than army laboratories except to meet a local emergency (AR 40-410). Letters of transmittal are not desired. All information should be in the protocol, or an M.D. Form 55 M. AR 40-410 authorizes direct correspondence between the Curator, Army Medical Museum, the histopathologic centers and the chiefs of laboratory services.

DIAGNOSIS AND TREATMENT OF TRICHOMONAS VAGINALIS VAGINITIS

In the Technical Bulletin of Medicine number 8 of the War Department the method of managing cases of *Trichomonas vaginalis* vaginitis occurring in the military service is discussed. The demonstration of the causative organism establishes the diagnosis. *Trichomonas*, which is a motile flagellate, can be easily identified by microscopic examination of a fresh wet preparation, preferably employing the weighing drop. No one method of treatment is satisfactory in all cases. The following is considered especially applicable to ambulatory patients: After the diagnosis has been established, tampons medicated with acetasone are dispensed. These are to be inserted morning or evening and removed at the end of twelve

hours. One tampon a day is used during the first week of treatment and one on alternate days thereafter for three weeks except during menstruation, when changes will be made as frequently as necessary. If, after a menstrual period, microscopic examination should reveal the continued presence of the organisms, the same regimen should be continued for a second month. Following either the one or two months period of treatment, use of the tampons will be continued during menstruation for three periods. Whenever practicable, during a course of treatment, a vaginal douche containing 1 tablespoon of either vinegar or sodium perborate in a quart of warm water is used once a week, but not oftener. If symptoms recur, a second course of therapy can be instituted after an interval of one month without treatment, but a thorough study to eliminate the possible presence of complications such as bladder infections or nonspecific endocervicitis should be conducted before a recurrence is assumed. During a course of therapy with acetasone tampons the patient must be observed for urticaria, dermatitis, purpura or any other sign of arsenical susceptibility. Discomfort or inability to use tampons will necessitate the use of the drug in the form of tablets, which should be inserted by the medical officer. Following discontinuance of treatment, microscopic examinations of vaginal secretions should be made after each menstrual period for at least three months. The patient must be informed that douches or vaginal medication of any type should not be used for thirty-six hours prior to this examination.

U. S. ARMY TRANSPORT JOHN L. CLEM DESIGNATED AS ARMY HOSPITAL SHIP

The War Department, Washington, D. C., in General Orders No. 28, states that on Feb. 24, 1944 the U. S. Army transport *John L. Clem* was designated as a United States Army hospital ship in accordance with international practice, as set forth in the provisions of the Hague Convention X of 1907. In the future the United States Army hospital ship *John L. Clem* will be operated in accordance with the provisions of applicable treaties. Notification of this designation was delivered, through channels, to the Hungarian and Rumanian governments on March 10, to the Japanese government on March 11 and to the Thai government on March 13. The ship's master of this and all other United States military hospital ships will at all times maintain sufficient copies of this general order for presentation to any authorized agent of an enemy belligerent who may require it for inspection.

FINE DISPENSARY SERVES UNITED STATES TROOPS ABROAD

Two general dispensaries in the London area were recently combined to form the most complete overseas dispensary in the world, so that the United States Army personnel can have the best possible medical attention. This medical installation is supervised by Major Franklin D. Cooper, formerly of Oakmont, Pa., and was the first to be set up in the British Isles. In 1942 the unit was both a hospital and a dispensary treating medical, surgical and lying-in cases alike, but as army general hospitals were installed this dispensary eliminated its wards until now it specializes in medical, light surgical treatment and laboratory and x-ray diagnosis. Every doctor in this dispensary is a specialist in his field. The dispensary gives regular medical attention to officers, enlisted men, Wacs, civilians working for the Army, and members of the casts of USO camp shows. In addition, in emergencies, civilians and others who are air raid casualties are tended. There is a woman doctor and four WAC assistants who attend Wacs and civilian women working for the U. S. Army. Classes are conducted by specialists on

the staff for other officers and enlisted men attached to the dispensary to add further to their medical knowledge and so help keep the American soldier the "best taken care of in the world."

CLINICAL CONFERENCE ON RECENT ADVANCES ON MEDICINE IN WARTIME

A twelve hour conference on the recent advances of medicine in wartime was held at the municipal theater in North Africa at Oran, which was attended by physicians, surgeons and dentists of the French, British and American armed forces. Col. Howard J. Hutter was responsible for organizing the conference. Lectures on the latest advancements of battlefield medication, surgery, sanitation, dentistry, therapeutics and control were presented. The convention was so large and wide in scope that it was necessary to utilize the Oran Conservatory of Music and the Lycée Lamoricière buildings to house the many exhibitions and demonstrations.

The fundamental purpose of the conference was to establish a better understanding and spirit of liaison among the civilian, military and naval members of the medical profession who now occupy the Mediterranean base section, the department of Oran and the division of Oran to a furtherance of our allied effort, by a mutual exchange of ideas and methods in the latest and most approved advance in medicine, surgery, sanitation and preventive medicine.

173,000 CASUALTIES EVACUATED BY U. S. AIRCRAFT IN 1943

During 1943 more than 173,000 sick and wounded patients of United States and allied forces were evacuated by American military aircraft throughout the world. The total, based on reports from the Air Surgeon, Major Gen. David N. W. Grant, U. S. Army, to the commanding General of the Army Air Forces, Gen. H. H. Arnold, U. S. Army, is divided as follows:

Eleven air forces overseas.....	161,541
Eleven air transport command wings overseas.....	8,687
AAF, continental United States.....	3,299
	<hr/> 173,527

These figures refer to sick and wounded patients admitted to a medical service and therefore include not only nonbattle casualties but also persons who have been air evacuated more than once from one hospital to another. For this reason these figures cannot be compared with totals appearing in battle casualty lists.

In all, 3,260 individuals were evacuated from theaters of operation into the United States aboard Air Transport Command airplanes. The totals of patients evacuated in the major theaters of operation are as follows: New Guinea, 70,808; Solomon Islands, 24,767, and Tunisia, Sicily and Italy, 58,479.

MEDICAL ADMINISTRATIVE OFFICER AWARDED LEGION OF MERIT

Capt. Thomas O. Matthews, M. A. C., formerly of Angleton, Texas, has been awarded the Legion of Merit for "exceptionally meritorious conduct in the performance of outstanding service, exhibiting courage, fidelity and resourcefulness from Sept. 11 to 18, 1943 during the initial phases of the installation of an evacuation hospital. With a bare minimum of transportation at his disposal he efficiently and expeditiously directed the transportation of the hospital equipment from landing beaches while under bombardment from the air. During blackout and frequent exposure to shell fragments from anti-aircraft fire he worked ceaselessly for four successive days and nights, directing the enlisted personnel of the detachment in the erection and installation of the hospital. His tireless efforts after the erection of the hospital in directing the maintenance of the installation and its equipment and his contribution to the high standard of efficiency and morale in the organization during this period of stress greatly aided the commanding officer in the successful administration of the unit."

COL. PAUL K. SAUER AWARDED LEGION OF MERIT

Col. Paul K. Sauer, formerly of New York City, has been awarded the Legion of Merit "for exceptionally meritorious conduct in the performance of outstanding services from Sept. 9 to Sept. 15, 1943 as commanding officer, . . . Evacuation Hospital. Colonel Sauer led his command ashore on the day of the Allied landings in Italy and for the next three days worked tirelessly, organizing his personnel and assembling equipment. He opened his hospital for the reception of patients Sept. 12, 1943 although handicapped by air raids, blackout conditions, incomplete personnel and equipment, and lack of water. Largely as a result of his outstanding leadership and sincere devotion to duty, the . . . Evacuation Hospital was able to care for over 1,000 patients during its first four days of operation, thus saving many lives and alleviating much suffering. Colonel Sauer had so perfected the training of his unit that enlisted men took the place of nurses in the wards and operating rooms with skill and confidence. The professional judgment, inspiring leadership and unerring sense of duty displayed by Colonel Sauer are in keeping with the highest traditions of the military service." Dr. Sauer graduated from the University of Pennsylvania School of Medicine, Philadelphia, in 1913 and entered the service in June 1942.

COL. ROLLIN L. BAUCHSPIES AWARDED LEGION OF MERIT

Col. Rollin L. Bauchspies, formerly of Washington, D. C., has been awarded the Legion of Merit "for exceptionally meritorious conduct in the performance of outstanding service. Colonel Bauchspies led the personnel of his hospital over the beaches near Paestum, Italy, following the initial assault troops. There he regrouped his personnel and collected his equipment, which had been scattered along 5 miles of beach, and established a station within twelve hours. Handicapped by lack of nurses and incomplete equipment, Colonel Bauchspies opened his hospital for the reception of patients with eleven surgical tables in operation and hundreds of patients cared for with skill, sympathy and expediency, reflecting highest credit on the administrative ability of Colonel Bauchspies and the state of training he had achieved in his organization. On September 23 the hospital was expanded to 25 per cent above its normal capacity and, through the exercise of sound judgment, determined will and the utmost consideration for the welfare of its patients, many lives were saved. The unselfish devotion to duty displayed by Colonel Bauchspies contributed greatly to the morale of the Army and is in keeping with the highest traditions of the military service." Dr. Bauchspies graduated from the University of Pennsylvania School of Medicine, Philadelphia, in 1928. He entered the service early in 1941.

CAPT. HARRY C. SMITH JR. WINS CITATION

Capt. Harry C. Smith Jr., formerly of Aberdeen, Wash., was a member of the regiment combat team cited by the President for achievement in the New Guinea campaign. Dr. Smith had previously received the Purple Heart award for wounds received in New Guinea and had been presented with the Silver Star for gallantry in action. He was recently transferred to a headquarters medical battalion somewhere in Australia. Dr. Smith graduated from the University of Oregon Medical School, Portland, in 1937 and entered the service in July 1941.

FLIGHT SURGEONS' ASSISTANTS

A class of 113 flight surgeons' assistants completed the six weeks course in aviation medicine at the School of Aviation Medicine, Randolph Field, Texas, January 14. These men are trained as specialists in assisting flight surgeons in the selection, care and maintenance of the flier. Brig. Gen. Eugen G. Reinartz, U. S. Army, is commandant of the school.

MISCELLANEOUS

DISTRIBUTION OF PENICILLIN FOR
USE BY CIVILIANS

The War Production Board recently announced the establishment of a nationwide system for a limited civilian distribution of penicillin. The new system is now in operation. The system through which penicillin is channeled to over 1,000 depot hospitals, which are now selected, is centered in Chicago, where a WPB Office of Civilian Penicillin Distribution has been established at the WPB Regional Office at 226 West Jackson Boulevard. Dr. John N. McDonnell, who has been associated with the Drugs and Cosmetics Section of the Chemicals Bureau for two and one-half years as chief of its Research and Statistics Unit, has been named director of the new Office of Civilian Penicillin Distribution. J. Solon Mordell, chief of the Crude Drugs and Biologicals Unit of WPB's Office of Civilian Requirements, also is attached to the Chicago Office as the representative of the Office of Civilian Requirements. In addition, Dr. Chester S. Keefer of Boston, chairman of the Committee on Chemotherapy of the National Research Council and consultant to the Office of Scientific Research and Development, who has been in charge of the small emergency distributions of penicillin made to date, is also stationed in Chicago to act as medical adviser while the program is being established.

The distribution will be carried out as follows: Each month each penicillin manufacturer will apply to the War Production Board in Washington for a civilian quota based on the amount of his production. The list of individual manufacturers' allocations will then be forwarded to the Office of Civilian Penicillin Distribution in Chicago, which will assign quotas to each of the depot hospitals. Each of the hospitals will then order against its quota, sending its order to Chicago. The final function of the Chicago office will be to assign the hospital order to the penicillin manufacturers. Once the orders have been assigned to the manufacturers, the penicillin will be handled in conformity with established trade practices, the manufacturers shipping direct to the hospitals and invoicing according to their own customs. The quotas to be assigned to the hospitals to be selected for initial distribution will be established on the basis of bed capacities in the hospital in relation to the total number of depot hospitals, the number of hospitals in their areas and the available supply of penicillin. Depot hospitals will be expected to recognize the requests of other hospitals and, when their need has been established, to furnish penicillin for their purchase to the best of their ability in consideration of their supply on hand. In the event a hospital not on the designated list is unable to obtain penicillin from a designated depot hospital in its area, it may communicate direct with the director of civilian penicillin distribution in Chicago, who will endeavor to provide the penicillin so requested either by transfer of stocks from some other hospital or direct from a manufacturer in the established method.

As the initial penicillin supplies are expanded, officials said, any hospital allotment may be increased if special considerations warrant and more hospitals may be added to the initial list of depot institutions in order to permit broader distribution. Such new depot hospitals will be given quotas for direct purchase. To guide the hospitals in the use of the new drug, a report summarizing present medical knowledge regarding it has been prepared by Dr. Keefer and will be circulated by the Chicago office. All hospitals will be bound by these instructions and recommendations. The program now decided on has been approved by all the interested government agencies, by medical and scientific bodies and by the Penicillin Producers Industry Advisory Committee of the War Production Board.

Assisting the Office of Civilian Penicillin Distribution in carrying out the program will be an advisory panel headed by Fred Stock, chief of the Drugs and Cosmetics Section of the WPB Chemicals Bureau. The members of the panel are Dr. Keefer; Dr. William Ossenfort, medical director, chief of Hospital Division, U. S. Public Health Service; Dr. Victor Johnson, Hospital Division, American Medical Association, and Dr. Robert Fischelis, chief of the Chemicals, Drugs and Health

Supplies Branch of WPB's Office of Civilian Requirements. This panel is charged with the work of selecting the depot hospitals.

WPB order M-338, under which penicillin has been allocated, is being amended to incorporate the new distributive procedure. No changes will be made in personnel of the Washington office now directing the penicillin program. Roy S. Koch, chief of the Biological and Parenteral Solution Unit of the Drugs and Cosmetic Section, is administrator of the order.

When the supply of penicillin for civilian uses increases to the point where it is considered ample, the interim procedure now being established for its distribution will be discontinued, officials said, and all manufacturers will employ their respective methods of commercial distribution through whatever channels they prefer.

HOSPITALS NEEDING INTERNS
AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

(Continuation of list in *THE JOURNAL*, April 29, page 1260)

ILLINOIS

St. Francis Hospital, Evanston. Capacity, 377; admissions, 8,416. Sister M. Florina, R.N., Superintendent (interns—October 1).

MASSACHUSETTS

House of the Good Samaritan, Boston. Capacity, 83, admissions, 119. Miss Elma J. Hussey, R.N., Superintendent (resident, cardiology).

NEW JERSEY

Passaic General Hospital, Passaic. Capacity, 275; admissions, 5,661. Miss Margaret A. Wallace, R.N., Superintendent (2 interns).

NEW YORK

Children's Hospital, Buffalo. Capacity, 302; admissions, 6,440. Mr. Moir P. Tanner, Superintendent (assistant resident, pediatrics—July 1).

PENNSYLVANIA

Williamsport Hospital, Williamsport. Capacity, 275; admissions, 5,994. Mr. D. W. Hartman, Superintendent (2 interns—October 1).

TRAINING CHINA'S YOUNG ARMY OF
MEDICAL AIDES

Lieut. Gen. Robert Kho-sheng-Lim, chief of the Supervising and Planning Commission of the Chinese Army Medical Service, who recently arrived in this country on a military mission, announced through the National War Fund (46 Cedar Street, New York 5) that the burden of the medical treatment of wounded Chinese soldiers is being shouldered by 8,000 young Chinese men and women between 17 and 25 years of age. These young medicos are known as junior medical aides and go into the field after intensive training of six and even three months. General Lim stated that there are only about 6,000 fully trained M.D.'s in Free China today, of which 3,000 are serving with the Chinese army. The training of China's young army of medical aides is accomplished in six emergency medical service training schools, which were organized partly with funds supplied by the American Bureau for Medical Aid to China and which are today being supported by funds obtained by United China Relief through the National War Fund. Since the need for their services is so great, only the most basic medical training and instruction in only the most common diseases can be given to the junior medical aides. The training consists of instruction in first aid, in setting bones and treating fractures, in immunization, in preventive medicine and in general sanitation. Graduates of the emergency medical service training schools go into small towns or villages near the front lines and set up medical stations and dispensaries.

General Lim organized the Chinese Red Cross Medical Relief Corps in 1937 and created hundreds of mobile operating units, known as "hospitals on mulchback," which for seven years have operated as near as a half mile to the fighting lines. In June 1943 General Lim was awarded the Legion of Merit.

WAR PRODUCTION BOARD EASES RESTRICTIONS ON THE MANUFACTURE AND SALE OF PHYSICAL THERAPY EQUIPMENT

The War Production Board recently announced that restrictions on the manufacture and sale of physical therapy equipment have been eased and that medical practitioners and hospitals may now buy certain types of equipment that formerly were restricted to these groups and to hospitals. In addition, three types of physical therapy equipment, generally approved by the medical profession for home use, may now be sold to the public on prescription or order of a licensed medical practitioner. Action was taken on April 7 by amending order L-259 (physical therapy equipment). The order as issued in February 1943 placed strict control on production and distribution of this equipment and prohibited the manufacture of most types except for the armed services and lend-lease. Types that may now be manufactured are those most needed for general use. They are listed in schedule A of the order as follows: electric bakers, fever cabinets, galvanic generators, infra-red generators, low voltage generators, magnetic field generators, medical diathermy units, passive vascular exercise apparatus, surgical diathermy units, ultraviolet radiation equipment and whirlpool baths. These items may be sold to the armed services, to lend-lease, for licensed export orders, to hospitals and medical departments of industrial concerns, to medical practitioners and to distributors for delivery for these users.

Three types of equipment in schedule A (electric bakers, infra-red generators and ultraviolet radiation equipment) may be sold or rented to the public on written prescription of a medical practitioner licensed to use physical therapy equipment. Formerly the only types that could be made for civilian use (hospitals) were electric bakers, fever cabinets, major ultraviolet radiation equipment, passive vascular exercise apparatus and surgical diathermy units. Monthly scheduling reports are no longer required from manufacturers. However, quarterly reports of shipments of electric bakers, infra-red generators and ultraviolet radiation equipment to purchasers other than the armed services and lend-lease must be made by manufacturers. One combined dollar value figure is required. Distribution controls established by the order are designed to place the equipment that may now be manufactured in the hands of those having an urgent need for it, the War Production Board said.

COMMUNITIES IN NEED OF PHYSICIANS

The following five communities have applied to the U. S. Public Health Service for federal assistance in obtaining the services of physicians under the recently enacted law authorizing an appropriation of \$200,000 for the relocation of physicians:

Pineville (Mecklenburg County) North Carolina.
Star (Montgomery County) North Carolina.
Glenrock (Converse County) Wyoming.
Waxhaw (Union County) North Carolina.
Leola (McPherson County) South Dakota.

Physicians interested in locating in these communities should communicate with the Surgeon General, United States Public Health Service, Washington (Bethesda Station), D. C.

NATION FACES VITAMIN A DEFICIT

The Fish and Wildlife Service of the Department of the Interior recently warned that the nation faces a vitamin A deficit and that the soupfin shark fishery, chief United States source of vitamin A, apparently is being rapidly depleted. Service scientists pointed out that landings in February were 70 per cent below those of February 1943, although fishermen had intensified their efforts and were using more gear. February landings of domestic soupfin shark livers at Seattle, center of the fishery, were 83,960 pounds, as compared with 280,781 pounds in the same month of 1943. The service also announced that vitamin A stock held by producers and pharmaceutical houses as of February 29 in the form of livers, liver oils and concentrates totaled approximately 51 trillion units. At the end of February 1943 holdings amounted to 88 trillion units. Indications are that the consumption of vitamin A in this country now exceeds production, the service

said. The soupfin shark has an exceptionally large liver, which is pressed for oil. The oil contains the highest known natural concentration of vitamin A of any species taken in the United States fisheries. Other shark livers are also of some importance to processors, but vitamin A concentrations in them are considerably lower. The soupfin shark fishery was increasing before the war as a result of the generally rising use of vitamin products. With the advent of war, which cut off foreign sources of supply, the price of soupfin shark livers rose to a high point of \$9.25 a pound at one time. The price was 18.6 cents a pound in 1937. The current price runs from \$6 to \$7 a pound.

NATIONAL INDUCTION OF U. S. CADET NURSE CORPS MAY 13

The Division of Nurse Education, U. S. Public Health Service, in cooperation with the National Nursing Council for War Service, is holding a U. S. Cadet Nurse Corps National Induction on May 13. The program will be broadcast from Constitution Hall, Washington, D. C., over the N. B. C. network from 4:30 to 5 p. m. eastern war time.

The speakers will include Mrs. Franklin D. Roosevelt, Hon. Paul V. McNutt, administrator of the Federal Security Agency, Mrs. Frances P. Bolton, Congresswoman from Ohio, who sponsored the act establishing the Cadet Nurse Corps, and Miss Lucile Petry, Cadet Nurse Corps director. Helen Hayes will give a dramatic presentation. Dr. Thomas Parran, Surgeon General of the U. S. Public Health Service, will administer the U. S. Cadet Nurse Corps induction pledge to 700 uniformed cadet nurses in Washington. The U. S. Navy Symphony, under the direction of Lieut. Charles Brendler, U.S.N.R., will introduce the new U. S. Cadet Nurse Corps march.

While the national induction is taking place in Washington, cadet nurses throughout the country will assemble in listening groups, wearing either corps or school uniforms, and will stand at attention as Dr. Parran administers the pledge over the radio. Schools of nursing and state and local groups are being asked to plan special ceremonies around the broadcast.

PUBLIC HEALTH UNDER HITLER

According to a recent release from the Netherlands Information Bureau, the shortage of physicians has become so serious in Germany that the Nazi labor office in the Netherlands is planning to deport from five hundred to two thousand Dutch physicians to the reich. Ostensibly their services will be reserved for Netherlands workers in Germany, but actually they will be used to treat German soldiers and civilians. The Dutch underground newspaper *Trouw* has seen through this subterfuge and in a recent issue exhorted the Netherlands doctors to resist deportation as effectively as they resisted German efforts to nazify the medical profession in the past. "The danger of deportation to Germany is great," the paper pointed out. "We must count on new large scale efforts on the part of the Germans to deport from five hundred to two thousand doctors. Already all doctors have been ordered to register at the labor office. The watchword must be 'No Dutch doctor goes voluntarily to Germany.'"

Trouw gave the following reasons why doctors should resist deportation: "It is most improbable that the Germans would allow them to treat Dutch workers—Netherlands medical students in Germany are often employed as doctors, but never in Dutch labor camps. If they go to Germany for the benefit of the German workers they will be rendering an important service to the enemy. Once deportation of doctors begins, it will not be stopped—there would be a calamitous shortage of doctors in the Netherlands."

Anton Mussert, head of the Dutch Nazi party, had indicated at the annual meeting of the nazified "Medical Front" that the Germans were planning to conscript five hundred to one thousand Netherlands physicians and asserted "We will do our utmost to force these immoral unpatriotic doctors, who want to leave their compatriots in Germany without medical care, to do their duty."

ORGANIZATION SECTION

THE CHICAGO SESSION

AMERICAN MEDICAL ASSOCIATION, NINETY-FOURTH ANNUAL SESSION

CHICAGO, JUNE 12-16, 1944

OFFICIAL CALL

TO THE OFFICERS, FELLOWS AND MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION

The ninety-fourth annual session of the American Medical Association will be held in Chicago, June 12-16, 1944.

The House of Delegates will convene at 10 a. m. Monday, June 12. In the House the representation of the various constituent associations for 1944, 1945 and 1946 is as follows:

Alabama	2	New Hampshire	1
Arizona	1	New Jersey	5
Arkansas	2	New Mexico	1
California	8	New York	20
Colorado	2	North Carolina	2
Connecticut	3	North Dakota	1
Delaware	1	Ohio	8
District of Columbia	1	Oklahoma	2
Florida	2	Oregon	1
Georgia	3	Pennsylvania	11
Idaho	1	Rhode Island	1
Illinois	9	South Carolina	1
Indiana	4	South Dakota	1
Iowa	3	Tennessee	2
Kansas	3	Texas	5
Kentucky	2	Utah	1
Louisiana	2	Vermont	1
Maine	1	Virginia	2
Maryland	2	Washington	2
Massachusetts	6	West Virginia	2
Michigan	5	Wisconsin	3
Minnesota	4	Wyoming	1
Mississippi	2	Alaska	1
Missouri	4	Hawaii	1
Montana	1	Islandian Canal Zone	1
Nebraska	2	Philippine Islands	2
Nevada	1	Puerto Rico	1

The sixteen scientific sections of the American Medical Association, the Medical Corps of the Army, the Medical Corps of the Navy and the Public Health Service are entitled to one delegate each.

The Scientific Assembly of the Association will open with the general meeting, to be held at 8 p. m. Tuesday, June 13. The sections will meet Wednesday, Thursday and Friday, June 14, 15 and 16, as follows:

CONVENING AT 9 A. M. THE SECTIONS ON

Practice of Medicine.
Obstetrics and Gynecology.
Laryngology, Otology and Rhinology.
Pathology and Physiology.
Preventive and Industrial Medicine and Public Health.
Urology.
Orthopedic Surgery.
Anesthesiology.
Miscellaneous Business:
Sessions for the General Practitioner.

CONVENING AT 2 P. M. THE SECTIONS ON

Surgery, General and Abdominal.
Ophthalmology.
Pediatrics.
Experimental Medicine and Therapeutics.
Nervous and Mental Diseases.
Dermatology and Syphilology.
Gastro-Enterology and Proctology.
Radiology.

The Registration Department, which will be located in the Hotel Stevens, will be open from 8:30 a. m. until 5:30 p. m. Monday, Tuesday, Wednesday and Thursday, June 12, 13, 14 and 15, and from 8:30 a. m. to 12 noon Friday, June 16.

JAMES E. PAULLIN, President.
H. H. SHOULDERS, Speaker, House of Delegates.
OLIN WEST, Secretary.

MEMBERS OF THE HOUSE OF DELEGATES

A Preliminary Roster of the Legislative Body of the American Medical Association

The list of members of the House of Delegates for the session is incomplete, as a number of the state associations are yet to hold their meetings at which delegates will be elected. The following is a list of the holdover members of the House of Delegates and of the newly elected members who have been reported to the Secretary in time to be included:

STATE DELEGATES

ALABAMA	INDIANA
A. A. Walker, Birmingham. Lloyd Noland, Fairfield.	H. G. Hamer, Indianapolis. George R. Dillinger, French Lick. Don F. Cameron, Fort Wayne. F. S. Crockett, La Fayette.
ARIZONA	IOWA
Harold W. Kehl, Tucson.	Ransom D. Bernard, Clarion.
ARKANSAS	KANSAS
William R. Brooksher, Fort Smith.	J. F. Hassig, Kansas City. Forrest L. Loveland, Topeka.
CALIFORNIA	KENTUCKY
Edward N. Ewer, Oakland. William H. Riger, Los Angeles. Robert A. Peers, Colfax. William R. Molony Sr., Los Angeles. Dwight L. Wilbur, San Francisco. Lyell C. Kinney, San Diego. Lowell S. Goin, Los Angeles. Henry S. Rogers, Petaluma.	J. B. Lukins, Louisville. Virgil E. Simpson, Louisville.
COLORADO	LOUISIANA
Walter W. King, Denver. John Andrew, Longmont.	Leon J. Menville, New Orleans. James D. Graves, Monroe.
CONNECTICUT	MAINE
James R. Miller, Hartford.	Thomas A. Foster, Portland.
DELAWARE	MARYLAND
James Beebe, Lewes.	Thomas S. Cullen, Baltimore. Alfred T. Gundry, Baltimore.
DISTRICT OF COLUMBIA	MASSACHUSETTS
C. B. Conklin, Washington.	Allen G. Rice, Springfield. Richard H. Miller, Boston. David D. Scannell, Boston. Dwight O'Hara, Boston. Charles E. Mongan, Somerville. Walter G. Phippen, Salem.
FLORIDA	MICHIGAN
Edward Jelks, Jacksonville. H. L. Pearson Jr., Miami.	Henry A. Luce, Detroit. T. K. Gruber, Eloise. Claude R. Keyport, Grayling. Leo G. Christian, Lansing. Frank E. Reeder, Flint.
GEORGIA	MINNESOTA
William A. Mulherin, Augusta. Allen H. Breece, Atlanta. Olin H. Weaver, Macon.	W. A. Coventry, Duluth. A. W. Adson, Rochester. Francis J. Savage, St. Paul. E. W. Hansen, Minneapolis.
IDAHO	MISSISSIPPI
Edward N. Roberts, Pocatello.	J. P. Wall, Jackson.
ILLINOIS	
Robert H. Hayes, Chicago. Mather Pfeifferberger, Alton. C. E. Wilkinson, Danville. Lee O. Frech, Decatur.	

MISSOURI
Robert E. Schlueter, St. Louis.
James R. McVay, Kansas City.

MONTANA
J. H. Irwin, Great Falls.

NEBRASKA
Roy W. Fouts, Omaha.
Karl S. J. Hohlen, Lincoln.

NEW HAMPSHIRE
Deering G. Smith, Nashua.

NEW JERSEY
Thomas K. Lewis, Camden.
Hilton S. Read, Atlantic City.
Wells P. Eagleton, Newark.
Andrew F. McBride, Paterson.
Lucius F. Donohoe, Bayonne.

NEW MEXICO
H. A. Miller, Clovis.

NEW YORK
James R. Reuling Jr., Bay Side.
Edward R. Cunniffe, New York.
William D. Johnson, Batavia.
Thomas M. Brennan, Brooklyn.
Clarence G. Bandler, New York.
Floyd S. Winslow, Rochester.

Walter P. Anderton, New York.
Oliver W. H. Mitchell, Syracuse.
Albert A. Gartner, Buffalo.
Edward C. Podvin, New York.
Louis H. Bauer, Hempstead.
Thomas A. McGoldrick, Brooklyn.
James M. Flynn, Rochester.
George W. Kosmak, New York.
Louis A. Van Kleeck, Manhasset.
John J. Masterson, Brooklyn.
F. Leslie Sullivan, Scotia.
Walter W. Mott, White Plains.
J. Stanley Kenney, New York.
William Hale, Utica.

NORTH CAROLINA
W. C. Davidson, Durham.
Ross S. McElwee, Statesville.

NORTH DAKOTA
A. P. Nachtwey, Dickinson.

OHIO
Barney J. Hein, Toledo.
Parke G. Smith, Cincinnati.
William M. Skipp, Youngstown.

OKLAHOMA
A. S. Risser, Blackwell.

OREGON
Morris L. Bridgeman, Portland.

PENNSYLVANIA
Francis F. Borzell, Philadelphia.
James H. Corwin, Washington.
Walter F. Donaldson, Pittsburgh.
Charles H. Henninger, Pittsburgh.
Leonard G. Redding, Scranton.
Robert L. Anderson, Pittsburgh.
William L. Estes Jr., Bethlehem.
J. Newton Hunsberger, Norristown.
Joseph Scattergood Jr., West Chester.
Alexander H. Stewart, Harrisburg.
Charles G. Strickland, Erie.

RHODE ISLAND
Alex M. Burgess, Providence.

SOUTH CAROLINA
T. A. Pitts, Columbia.

SOUTH DAKOTA
N. J. Nessa, Sioux Falls.

TENNESSEE
E. G. Wood, Knoxville.
H. B. Everett, Memphis.

TEXAS
Holman Taylor, Fort Worth.
Francis J. Blasingame, Wharton.

UTAH
John Z. Brown, Salt Lake City.

VERMONT
Benjamin F. Cook, Rutland.

VIRGINIA
J. Morrison Hutcheson, Richmond.
Walter B. Martin, Norfolk.

WASHINGTON
R. L. Zech, Seattle.
John H. O'Shea, Spokane.

WEST VIRGINIA
Walter E. Vest, Huntington.
Ivan Fawcett, Wheeling.

WISCONSIN
Stephen E. Gavin, Fond du Lac.
James C. Sargent, Milwaukee.
William D. Stovall, Madison.

WYOMING
George P. Johnston, Cheyenne.

HAWAII
F. J. Pinkerton, Honolulu.

ISTHMIAN CANAL ZONE
Lewis B. Bates, Ancon.

PUERTO RICO
Oscar G. Costa-Mandry, Santurce.

DELEGATES FROM THE SECTIONS AND GOVERNMENT SERVICES

PRACTICE OF MEDICINE
Fred M. Smith, Iowa City.

SURGERY, GENERAL AND ABDOMINAL
Henry W. Cave, New York.

OBSTETRICS AND GYNECOLOGY
Jean Paul Pratt, Detroit.

OPHTHALMOLOGY
Arthur J. Bedell, Albany, N. Y.

LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY
Burt R. Shurly, Detroit

PEDIATRICS
William Weston, Columbia, S. C.

EXPERIMENTAL MEDICINE AND THERAPEUTICS
O. P. J. Falk, St. Louis

PATHOLOGY AND PHYSIOLOGY
L. W. Larson, Bismarck, N. D.

NERVOUS AND MENTAL DISEASES
Henry R. Viets, Boston.

DERMATOLOGY AND SYPHILOLOGY
Clyde L. Cummer, Cleveland.

PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH
Stanley H. Osborn, Hartford, Conn.

UROLOGY
Roy B. Henline, New York.

ORTHOPEDIC SURGERY
J. Archer O'Reilly, St. Louis.

GASTRO-ENTEROLOGY AND PROCTOLOGY
Louis A. Buie, Rochester, Minn.

RADIOLOGY
E. H. Skinner, Kansas City, Mo.

ANESTHESIOLOGY
H. S. Ruth, Merion Station, Pa.

UNITED STATES ARMY
George F. Lull.

UNITED STATES NAVY
Harold W. Smith.

UNITED STATES PUBLIC HEALTH SERVICE
Warren F. Draper.

OFFICERS OF THE AMERICAN MEDICAL ASSOCIATION, 1943-1944

PRESIDENT—James E. Paullin, Atlanta, Ga.

PRESIDENT-ELECT—Herman L. Kretschmer, Chicago.

VICE PRESIDENT—John W. Amessc, Denver, Colo.

SECRETARY AND GENERAL MANAGER—Olin West, Chicago.

TREASURER—J. J. Moore, Chicago.

SPEAKER, HOUSE OF DELEGATES—H. H. Shoutders, Nashville, Tenn.

VICE SPEAKER, HOUSE OF DELEGATES—R. W. Fouts, Omaha.

EDITOR—Morris Fishbein, Chicago.

BUSINESS MANAGER—Will C. Braun, Chicago.

BOARD OF TRUSTEES—Roger I. Lee, Chairman, Boston, 1944; E. L. Henderson, Louisville, Ky., 1944; Ralph A. Fenton, Portland, Ore., 1945; James R. Bloss, Huntington, W. Va., 1945; C. W. Roberts, Atlanta, Ga., 1946; Edward M. Pallette, Los Angeles, 1947; R. L. Sensenich, South Bend, Ind., 1947; William F. Braasch, Rochester, Minn., 1948; Ernest E. Irons, Secretary, Chicago, 1948.

JUDICIAL COUNCIL—Edward R. Cunniffe, New York, 1944; George Edward Follansbee, Chairman, Cleveland, 1945; Walter F. Donaldson, Pittsburgh, 1946; Lloyd Noland, Fairfield, Ala., 1947; John H. O'Shea, Spokane, Wash., 1948; Olin West, Secretary, ex officio, Chicago.

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS—Charles Gordon Heyd, New York, 1944; H. G. Weiskotten, Syracuse, N. Y., 1945; Ray Lyman Wilbur, Chairman, Stanford University, Calif., 1946; John H. Musser, New Orleans, 1947; Harvey B. Stone, Baltimore, 1948; Reginald Fitz, Boston, 1949; Russell L. Haden, Cleveland, 1950; Victor Johnson, Secretary, Chicago.

COUNCIL ON SCIENTIFIC ASSEMBLY—J. Gurney Taylor, Milwaukee, 1944; A. A. Walker, Chairman, Birmingham, Ala., 1945; Frederick A. Collier, Ann Arbor, Mich., 1946; Clyde L. Cummer, Cleveland, 1947; Edward L. Bortz,

Philadelphia, 1948, and ex officio, the President-Elect, the Editor and the Secretary of the Association.

COUNCIL ON MEDICAL SERVICE AND PUBLIC RELATIONS—Louis H. Bauer, Chairman, Hempstead, N. Y.; A. W. Adson, Rochester, Minn.; John H. Fitzgibbon, Portland, Ore.; W. S. Leathers, Nashville, Tenn.; E. J. McCormick, Toledo, Ohio; James R. McVay, Kansas City, Mo.; Olin West, Chicago; Roger I. Lee, Boston; James E. Paullin, Atlanta, Ga.; Fred W. Rankin, Washington, D. C.; G. Lombard Kelly, Secretary, Chicago.

COUNCIL ON PHARMACY AND CHEMISTRY (Standing Committee of Board of Trustees)—Morris Fishbein, Chicago, 1945; G. W. McCoy, New Orleans, 1945; Perrin H. Long, Baltimore, 1945; Elmer M. Nelson, Washington, D. C., 1945; Torald Sollmann, Chairman, Cleveland, 1946; E. M. Landis, Boston, 1946; E. L. Sevringhaus, Madison, Wis., 1946; E. M. K. Geiling, Chicago, 1947; W. W. Palmer, New York, 1947; S. W. Clausen, Rochester, N. Y., 1947; R. P. Herwick, Washington, D. C., 1948; C. S. Keefer, Boston, 1948; H. N. Cole, Cleveland, 1948; Stuart Mudd, Philadelphia, 1948; James P. Leake, Washington, D. C., 1949; David P. Barr, New York, 1949; Austin E. Smith, Secretary, Chicago.

COUNCIL ON PHYSICAL THERAPY (Standing Committee of Board of Trustees)—A. U. Desjardins, Rochester, Minn., 1945; H. B. Williams, New York, 1945; Frank H. Krusen, Rochester, Minn., 1945; Anthony C. Cipollaro, New York, 1946; M. A. Bowie, Bryn Mawr, Pa., 1946; G. M. Piersol, Philadelphia, 1946; W. E. Garrey, Nashville, Tenn., 1947; W. W. Coblentz, New York, 1947; John S. Coulter, New York, 1947; Eben J. Carey, New York, 1947; Ak R. Oher, New York, 1947; Kansas City, 1947; ex officio, Chicago, 1947; Howard A. Carey, Secretary, Chicago.

COUNCIL ON FOODS AND NUTRITION (Standing Committee of Board of Trustees)—Irvine McQuarrie, Minneapolis, 1945; Morris Fishbein, Chicago, 1945; R. M. Wilder, Rochester,

Minn., 1946; Howard B. Lewis, Ann Arbor, Mich., 1946; J. S. McLester, Chairman, Birmingham, Ala., 1946; Philip C. Jeans, Iowa City, 1947; C. A. Elvehjem, Madison, Wis., 1947; Lydia J. Roberts, Chicago, 1948; George R. Cowgill, New Haven, Conn., 1948; C. S. Ladd, Washington, D. C., 1949; John B. Youmans, Nashville, Tenn., 1949; George K. Anderson, Secretary, Chicago.

COUNCIL ON INDUSTRIAL HEALTH (Standing Committee of Board of Trustees)—Leroy U. Gardier, Saranac Lake, N. Y., 1945; A. J. Lanza, New York, 1945; C. D. Selby, Detroit, 1945; Warren F. Draper, Washington, D. C., 1946; Raymond Hussey, Baltimore, 1946; Henry H. Kessler, Newark, N. J., 1946; I. D. Bristol, New York, 1947; Philip Drinker, Boston, 1947; Stanley J. Seeger, Chairman, Texarkana, Texas, 1947; Harvey Bartle, Philadelphia, 1948; W. A. Sawyer, Rochester, N. Y., 1948; James S. Simmons, Washington, D. C., 1948; C. M. Peterson, Secretary, Chicago.

COMMITTEE ON SCIENTIFIC EXHIBIT—E. L. Henderson, Chairman, Louisville, Ky.; Ralph A. Fenton, Portland, Ore.; C. W. Roberts, Atlanta, Ga.; Thomas G. Hull, Director, Chicago. Advisory Committee—George Blumer, San Marino, Calif.; Paul J. Hanzlik, San Francisco; Ludvig Hektoen, Chicago; Urban Maes, New Orleans; Elen J. Carey, Milwaukee; James P. Leake, Washington, D. C.

BUREAU OF LEGAL MEDICINE AND LEGISLATION—J. W. Holloway Jr., Director, Chicago.

BUREAU OF HEALTH EDUCATION—W. W. Bauer, Director, Chicago.

BUREAU OF INVESTIGATION—Paul C. Barton, Director, Chicago.

BUREAU OF MEDICAL ECONOMICS—R. G. Leland, Director, Chicago.

LABORATORY—Albert E. Sidwell Jr., Director, Chicago.

LIBRARY—Marjorie Hutchins Moore, Librarian, Chicago.

CHICAGO

An important feature of the coming session—the first to be held in Chicago since 1924—is the opportunity to visit the headquarters office of the Association, now occupying a thoroughly remodeled nine story building. Visitors to the building will find about 500 employees in the various departments, bureaus and councils, a number which is more than 150 below maximum peacetime figures. This is a unique opportunity for many Fellows to become familiar with the wide range of activities at the headquarters office and with the numerous services offered.

crowded. Nevertheless they should be sufficient for convention needs. One, the Stevens, will house several scientific sections and the Technical Exhibits. The House of Delegates will meet at the Palmer House, which will also contain the great Scientific Exhibits. The big war meeting of the Association will be held Wednesday evening at the Medinah Temple.

THE CITY

The visitor to the annual session will have available many Chicago features of great cultural interest. They include the Art Institute, containing some of the great artistic works of all



Headquarters office of the American Medical Association, 535 North Dearborn Street, corner of Grand Avenue.

MEDICAL SCHOOLS AND HOSPITALS

There are four class A medical schools in Chicago—Northwestern University Medical School, the University of Illinois College of Medicine, with which Rush Medical College has become consolidated, the University of Chicago and Loyola University School of Medicine. Chicago has a large number of famous hospitals, including the enormous Cook County hospital, which will be available for clinics and visiting. Plans for the development of a large medical center on the west side of Chicago, in which several medical schools and hospitals will take part, are well under way. In this area also is the Hektoen Institute for Medical Research, established in 1943, occupying the space of the former John McCormick Institute for Infectious Diseases.

HOTELS AND MEETING PLACES

In ordinary times the hotel facilities of Chicago are paralleled by few other cities of the world. Today some hotels are not available for civilian occupancy, and all of them are unusually

time, the Chicago Museum of Natural History (formerly the Field Museum), a great planetarium, aquariums and the Rosenwald Museum of Science and Industry in Jackson Park. The latter institution has a complete coal mine and many other scientific and industrial exhibits of extraordinary interest and importance. The great packing plants of Chicago and the stockyards, which formerly attracted many, are closed to visitors at present. In spite of the war the number of cultural and medical features of interest in Chicago is ample to provide for the needs and desires of all visitors.

TRANSPORTATION

As is generally known throughout the country, transportation facilities are taxed to the limit at all times. It is suggested, therefore, that all those who desire to attend the annual session of the American Medical Association consult at the earliest possible time with the ticket agents at their home towns so that railroad and pullman accommodations may be secured.

HEADQUARTERS OF THE AMERICAN MEDICAL ASSOCIATION

Members are cordially invited to visit the headquarters of the American Medical Association, 535 North Dearborn Street, corner of Dearborn Street and Grand Avenue, at any time during the annual session, June 12 to 16, from 8:30 a. m. to 5 p. m.

HOW TO REACH THE HEADQUARTERS OF THE AMERICAN MEDICAL ASSOCIATION

For physicians staying at hotels in the Loop, access to the headquarters of the Association is easy by bus, subway or streetcar. Via bus, board a north bound bus on Michigan Boulevard, ride to Grand Avenue and walk four blocks west. Via subway, enter any subway station on State Street, ride north to Grand Avenue and on leaving the subway walk one block west. Via streetcar, board any streetcar on State Street north bound, except one marked "State and Lake," ride to Grand Avenue and walk one block west, or board any streetcar on Clark Street north bound to Grand Avenue and walk one block east.

For physicians stopping at hotels on the north side of the city, the headquarters may be reached as follows: Via bus, take a south bound bus to Grand Avenue and walk four blocks west; via subway, ride south to Grand Avenue and on leaving subway walk one block west; via streetcar, board State Street car south bound to Grand Avenue and then walk one block west, or board Clark Street car south bound to Grand Avenue and walk one block east.

ACTIVITIES OF ASSOCIATION

The American Medical Association Building is a nine story stone structure housing all activities of the Association, including its printing plant. For the benefit of visiting members, there is available a staff of guides familiar with the functions of the Association. In addition to the printing plant, including a press room, composing room, mailing room and bindery, which occupy the first three floors and basement, the departments are as follows:

Fourth Floor: Bureau of Medical Economics; Bureau of Legal Medicine and Legislation; Bureau of Scientific

Exhibits; Council on Medical Service and Public Relations; Council on Industrial Health; *HYGEIA* Editorial Office, and Consultant Office of Procurement and Assignment Service.

Fifth Floor: Council on Pharmacy and Chemistry; Council on Physical Therapy; Council on Foods and Nutrition; Chemical Laboratory; Bureau of Health Education and Bureau of Investigation.

Sixth Floor: Council on Medical Education and Hospitals; Directory Department, including a biographic index of physicians, and *HYGEIA* Circulation Department.

Seventh Floor: Office of the Secretary and General Manager; Office of the Business Manager; Advertising Department; Accounting Department; Fellowship, Membership and Subscription Department, and Cooperative Medical Advertising Bureau.

Eighth Floor: Office of the Editor; Editorial Department, including News Department, Foreign Abstracting Department and Manuscript Editing Department, and Library.

Ninth Floor: Assembly Room and Board of Trustees Room.

Too limited a number of Fellows of the American Medical Association are aware of the facilities available at the headquarters of the Association for carrying on its work, including the physical equipment for the printing of *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*; the special journals, namely *AMERICAN JOURNAL OF DISEASES OF CHILDREN*, *ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY*, *ARCHIVES OF INTERNAL MEDICINE*, *ARCHIVES OF NEUROLOGY AND PSYCHIATRY*, *ARCHIVES OF OPHTHALMOLOGY*, *ARCHIVES OF OTOLARYNGOLOGY*, *ARCHIVES OF PATHOLOGY*, *ARCHIVES OF SURGERY AND WAR MEDICINE*; *HYGEIA*; *American Medical Directory*; *QUARTERLY CUMULATIVE INDEX MEDICUS*, and by-products of *THE JOURNAL* and of the Press of the American Medical Association.

While it is realized that those who attend the annual session of the American Medical Association will be pretty well occupied, it is hoped that each of them will find at least one hour during the week for visiting the Headquarters of the American Medical Association to see for himself something of the work that is being done there.

REGISTRATION

The Bureau of Registration will be located in the lower level at the Hotel Stevens, Michigan Boulevard at Balbo Drive. A branch postoffice in charge of government postoffice officials will be available for visitors, and an information bureau will be operated in connection with the Bureau of Registration.

Who May Register

Only Fellows, Affiliate, Associate and Honorary Fellows and Invited Guests may register and take part in the work of the sections. Fellows of the Scientific Assembly are those who have, on the prescribed form, applied for Fellowship, subscribed to *THE JOURNAL* and paid their Fellowship dues for the current year. Fellowship dues and subscription to *THE JOURNAL* are included in the one annual payment of \$8, which is the regular subscription price of *THE JOURNAL*. Fellowship cards are sent to all Fellows after payment of annual dues, and these cards should be presented at the registration window. Any who have not received cards for 1944 should secure them at once by writing to the American Medical Association, 535 North Dearborn Street, Chicago 10.

Members in Good Standing Eligible to Apply for Fellowship in the Association

Members in good standing in the American Medical Association are those members of component county medical societies and of constituent state and territorial medical associations whose names are officially reported for enrolment to the Secretary of the American Medical Association by the secretaries of the constituent medical associations. All members in good standing may apply for Fellowship in the Scientific Assembly and are urged to qualify as Fellows before leaving home in order that pocket cards may be secured and brought to Chicago so that registration can be more easily and more promptly effected.

Application forms may be had on request.

Those subscribers to *THE JOURNAL* who have not received pocket cards for 1944 should write to the American Medical

Association in order to obtain application blanks and information as to further requirements.

Register Early

Fellows living in Chicago, as well as all other Fellows who are in Chicago on Monday and Tuesday, should register as early as possible.

The names and local addresses of those who register will be included in the issue of the *Daily Bulletin* appearing the next day, and this will enable visiting physicians to find friends who have registered.

Suggestions That Will Facilitate Registration

Fellows should fill out completely the spaces on both sections of the front of the *white* registration card, which will be found on the tables in front of the Registration Bureau.

Physicians who desire to qualify as Fellows should fill out completely the spaces on both sections of the front of the *blue* registration card and sign the application on the back. These cards will be found on the tables.

Entries on the registration card should be written plainly, or printed, as the cards are given to the printer to use as "copy" for the *Daily Bulletin*, which appears on Tuesday, Wednesday, Thursday and Friday mornings during the week of the session.

Fellows who have their pocket cards with them can be registered with little or no delay. They should present the filled out *white* registration card, together with the pocket card, at one of the windows marked "Registration by Pocket Card." There the clerk will compare the two cards, stamp the pocket card and return it and supply the Fellow with a badge, a copy of the official program and other printed matter of interest to those attending the annual session.

As previously stated, it will assist in registering if those who desire to qualify as Fellows will file their applications and qualify as Fellows by writing directly to the American Medical Association, 535 North Dearborn Street, Chicago 10, so that their Fellowship may be entered not later than May 15. Any applications that are received later than May 15 will be given

prompt attention, but the Fellowship pocket card may not reach the applicant in time for him to register at the Chicago session.

It will be possible for members of the organization to qualify as Fellows at Chicago. In order to do this, applicants for Fellowship will be required to fill out both sections of the front of the *blue* registration card and to sign the formal application that is printed on the reverse side of the card. It is suggested that those members who apply for Fellowship at Chicago bring with them their state membership cards for the year 1944. The state membership card should be presented along with the filled in *blue* registration card at the window in the booth marked "Applicants for Fellowship and Invited Guests."

As already stated, registration can be effected more easily and more promptly if members will qualify as Fellows before leaving home.

Registration for General Officers and Delegates at the Palmer House

General Officers of the American Medical Association and members of the House of Delegates may register for the Scientific Assembly outside the foyer of the Red Lacquer Room of the Palmer House. This arrangement is made for the convenience of the members of the House of Delegates, which will convene on Monday morning at 10 o'clock in the Red Lacquer Room of the Palmer House. Delegates are requested to register for the Scientific Assembly before presenting credentials to the Reference Committee on Credentials of the House of Delegates. Registration of delegates for the Scientific Assembly will begin at 8 o'clock Monday morning, June 12, and delegates are urged to register early so that all members of the House of Delegates may be seated in time for the opening session of the House.

CHICAGO HOTELS AND MAP

A list of Chicago hotels is presented for the benefit of those who expect to attend the annual session of the American Medical Association, June 12-16. Dr. Fred M. Muller is chairman of the Subcommittee on Hotels and may be addressed at 1 North La Salle Street, 23d Floor, Chicago 2, Ill. The advertising announcement and a coupon to be used for making reservations appear on advertising page 106 of this issue.

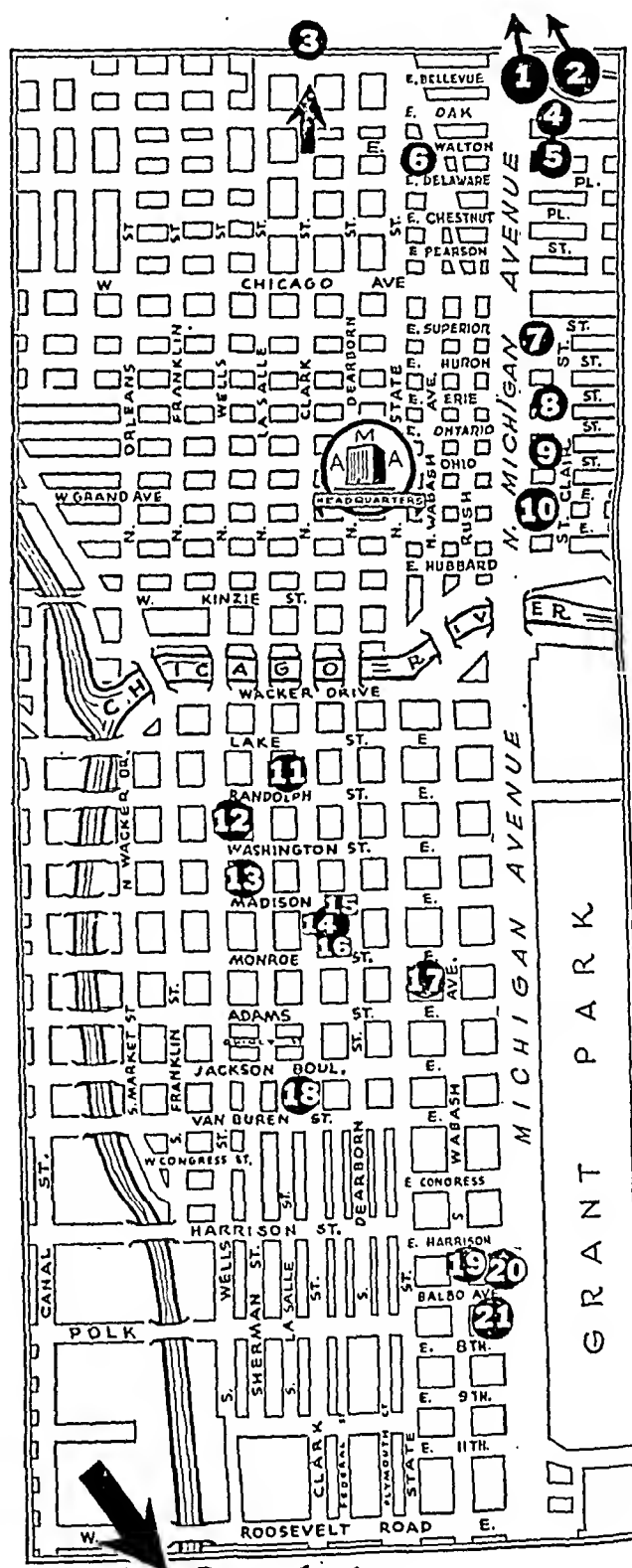
Since reservations are cleared through the subcommittee on hotels, it will greatly expedite matters if requests for reservations are addressed directly to Dr. Muller.

Schedule of Rates

Number on Map	Hotels	With Bath		
		Single	Double	Suites
7	ALLERTON * 701 N. Michigan Blvd.....	\$2.75	\$4.75	\$8.00
18	ATLANTIC * 316 S. Clark St.....	2.75- 3.30	3.75- 6.00	
12	BISMARCK 171 West Randolph St.....	3.75- 7.50	5.25-10.50	12.00 & up
20	BLACKSTONE † S. Michigan Blvd. & E. Balbo Drive	4.00 & up	7.50-10.00	10.00 & up
15	CHICAGOAN 67 W. Madison St.....	3.30- 4.40	5.95- 6.60	
4	DRAKE † E. Lake Shore & N. Michi- gan Blvd.	4.00-10.00	7.00-12.00	12.00 & up
8	EASTGATE † 162 E. Ontario St.....	3.30 & up	5.00 & up	
23	FLAMINGO 5520 S. South Shore.....	2.50- 3.50	4.00- 6.00	
16	HAMILTON † 20 S. Dearborn St.....	3.00- 6.00	5.00- 8.00	9.00-15.00
19	HARRISON 65 E. Harrison St.....	3.00	4.00- 5.00	
13	LA SALLE † LaSalle & W. Madison Sts.	3.30- 5.50	4.10- 7.70	5.50-20.00
6	MARYLAND 900 N. Rush St.....	3.00	5.00	10.00 & up
10	MEDINAH CLUB 505 N. Michigan Blvd....	3.50 & up	5.00 & up	8.00 & up
14	MORRISON 79 West Madison St.....	3.30- 5.50	4.95- 8.80	8.80-13.20
25	NORWOOD 6400 S. Normal Ave.....	2.00- 3.00	2.50- 3.00	
17	PALMER HOUSE † State and Monroe Sts....	3.85- 8.80	5.50-12.10	13.20 & up
3	PLAZA 1553 N. Clark St.....	2.00 & up	3.00 & up	5.00 & up
9	ST. CLAIR 162 E. Ohio St.....	3.50	5.00- 6.00	
2	SHERIDAN PLAZA 4607 N. Sheridan Road ...	2.00- 3.00	3.00- 5.00	7.00- 8.00
11	SHERMAN N. Clark & W. Randolph Sts.	3.30- 5.50	4.95- 8.80	8.80-22.00
22	SHORFLAND 5454 S. South Shore.....	5.00- 6.00	7.00- 8.00	14.00-15.00
26	SOUTHMOOR 6646 S. Stony Island Ave..	2.50- 3.00	4.00- 4.50	6.00- 7.00
1	SOVEREIGN 6200 N. Kenmore Ave....	3.50	4.50- 5.00	
21	STEVENS † Michigan Blvd. at Balbo Drive	3.50- 5.00	5.00-10.00	12.00 & up
24	WINDERMERE 1642 E. 56th St.....	4.00 & up	6.00 & up	8.00 & up

* Rooms without bath at lower rates.

† Booked to capacity.



22-26 inclusive

MEETING PLACES

HOUSE OF DELEGATES: Red Lacquer Room, Fourth Floor, Palmer House, State and Monroe streets.

OPENING GENERAL MEETING: Grand Ballroom, Fourth Floor, Palmer House, State and Monroe streets.

GENERAL SCIENTIFIC MEETINGS: Grand Ballroom, Fourth Floor, Palmer House, State and Monroe streets.

SCIENTIFIC EXHIBIT: Exhibition Hall, Palmer House, State and Monroe streets.

GENERAL HEADQUARTERS, REGISTRATION BUREAU, TECHNICAL EXHIBITS, INFORMATION BUREAU AND BRANCH POSTOFFICE: Lower Level and Ballroom, Hotel Stevens, Michigan Boulevard and Balbo Drive.

SECTIONS OF SCIENTIFIC ASSEMBLY

PRACTICE OF MEDICINE: Grand Ballroom, Fourth Floor, Palmer House, State and Monroe streets.

SURGERY, GENERAL AND ABDOMINAL: Grand Ballroom, Hotel Sherman, North Clark and West Randolph streets.

OBSTETRICS AND GYNECOLOGY: Grand Ballroom, Hotel Sherman, North Clark and West Randolph streets.

OPHTHALMOLOGY: Bal Tabarin Room, Hotel Sherman, North Clark and West Randolph streets.

LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY: Bal Tabarin Room, Hotel Sherman, North Clark and West Randolph streets.

PEDIATRICS: Grand Ballroom, Fourth Floor, Palmer House, State and Monroe streets.

EXPERIMENTAL MEDICINE AND THERAPEUTICS: Tower Room, Upper Level, Hotel Stevens, Michigan Boulevard and Balbo Drive.

PATHOLOGY AND PHYSIOLOGY: Tower Room, Upper Level, Hotel Stevens, Michigan Boulevard and Balbo Drive.

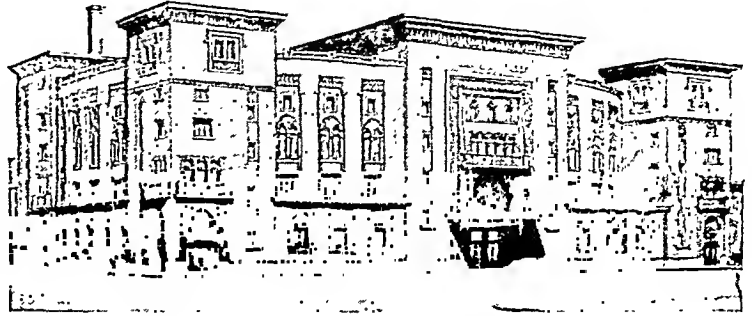
NERVOUS AND MENTAL DISEASES: Louis XVI and Crystal Rooms, Hotel Sherman, North Clark and West Randolph streets.

DERMATOLOGY AND SYPHILOLOGY: Tower Room, Lower Level, Hotel Stevens, Michigan Boulevard and Balbo Drive.

PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH: South Ballroom, Hotel Stevens, Michigan Boulevard and Balbo Drive.

UROLOGY: Tower Room, Lower Level, Hotel Stevens, Michigan Boulevard and Balbo Drive.

ORTHOPEDIC SURGERY: Louis XVI and Crystal Rooms, Hotel Sherman, North Clark and West Randolph streets.



Medinah Temple, where the War Meeting will be held.

GASTRO-ENTEROLOGY AND PROCTOLOGY: South Ballroom, Hotel Stevens, Michigan Boulevard and Balbo Drive.

RADIOLOGY: North Ballroom, Hotel Stevens, Michigan Boulevard and Balbo Drive.

ANESTHESIOLOGY: North Ballroom, Hotel Stevens, Michigan Boulevard and Balbo Drive.

MISCELLANEOUS TOPICS; SESSIONS FOR THE GENERAL PRACTITIONER: Mural Room, Hotel Morrison, 79 West Madison Street.

WAR MEETING

On the evening of Wednesday, June 14, a War Meeting will be held at the Medinah Temple, northwest corner of Ohio Street and Wabash Avenue. Addresses will be delivered by

important officials immediately concerned with the prosecution of the war. The program for this meeting is in preparation and will be announced at the earliest possible time.

ENTERTAINMENT

Dinner for Delegates

A dinner is being arranged for Monday, June 12, for members of the House of Delegates and officers of the American Medical Association. Complete information concerning the dinner will be available at the first meeting of the House of Delegates on Monday morning, June 12.

Luncheon for Delegates

A luncheon for the members of the House of Delegates and the officers of the American Medical Association is being planned for Tuesday noon, June 13, between the morning and afternoon sessions of the House of Delegates at the Palmer House.

Opening General Meeting

The Opening General Meeting will be held on Tuesday evening, June 13, in the Grand Ballroom, Palmer House. The program will begin at 8 o'clock.

Luncheons and Dinners

ALPHA KAPPA KAPPA, Luncheon in honor of Dr. Herman L. Kretschmer, Wednesday, June 14.

ALPHA OMEGA ALPHA, Dinner, Thursday, June 15, 7 p. m., at Palmer House.

HARVARD MEDICAL ALUMNI ASSOCIATION, Dinner Meeting, Wednesday, June 14, 6 p. m., University Club. Tickets sold at Registration Booth, Stevens Hotel.

LOYOLA UNIVERSITY MEDICAL ALUMNI ASSOCIATION, Luncheon, Wednesday, June 14, noon, Crystal Room of Palmer House. Dr. Herbert E. Schmitz will be luncheon chairman. There will be a report from the Secretary followed by an election of officers.

RADIO PROGRAM

The Bureau of Health Education has attempted to arrange radio broadcasts during the meeting as usual. This will be announced in THE JOURNAL when arrangements have been made for network time and for speakers. Radio time is at a premium

owing to war conditions, but some broadcasts will probably be made. Important material prepared for broadcasts but not placed on radio stations will be recorded for local broadcasting subsequent to the session.

WOMAN'S AUXILIARY

Mrs. Roy M. Hutchison, Chairman of the Chicago Committee

A most cordial invitation is extended to all Auxiliary members and the wives and guests of physicians present at the American Medical Association meeting to participate in the social functions and attend the sessions of the twenty-second annual meeting of the Woman's Auxiliary to the American Medical Association. Headquarters will be in the Towne Room of the Hotel Knickerbocker, 163 East Walton Place, where all meetings will be held. Please register early and obtain your badge and program. Tickets may be purchased at the registration desk. All meetings will convene at the time scheduled. Please be prompt.

REGISTRATION—FOYER BALL ROOM (LOBBY FLOOR)

Sunday, 2 to 4 p. m.; Monday, 8:30 a. m. to 4 p. m.; Tuesday, 8:30 a. m. to 4 p. m.; Wednesday, 8:30 a. m. to 4 p. m.

Preconvention Meetings

SATURDAY, JUNE 10

- 7 p. m. Finance Committee Meeting, Rose Room (second floor); chairman, Mrs. G. E. McDonnell.

SUNDAY, JUNE 11

- 3 p. m. Nominating Committee Meeting, Rose Room; chairman, Mrs. Roscoe E. Mosiman.
7 p. m. Revisions Committee Meeting, Rose Room; chairman, Mrs. Roscoe E. Mosiman.

MONDAY, JUNE 12

- 10 a. m. Meeting of the Board of Directors, Committee Room (fourteenth floor): presiding, Mrs. Eben J. Carey.
2:30 p. m. Luncheon, Board of Directors (fourteenth floor).
2:30 p. m. Afternoon Session of Meeting of Board of Directors, Committee Room (fourteenth floor).

General Meeting

TUESDAY, JUNE 13

- 10 a. m. Opening Meeting, Towne Room (fourteenth floor): Presiding, Mrs. Eben J. Carey, President.
Invocation, Reverend Joseph M. Eagen, S.J., President, Loyola University, Chicago.
Pledge of Allegiance to the Flag, Lieut. Viola Cawood Flowers, Woman's Army Corps.
Pledge of Loyalty to the Woman's Auxiliary to the American Medical Association, Mrs. Frank N. Haggard.
Greetings, Hon. Edward J. Kelly, Mayor of Chicago.
Address of Welcome, Mrs. M. A. Nix, past president, Woman's Auxiliary to the Illinois State Medical Society.
Response, Mrs. Asher Yaguda, past president, Woman's Auxiliary to the Medical Society of New Jersey.
In Memoriam, Mrs. M. B. Van Cleave.
Introduction of Mrs. Roy M. Hutchison, Chairman of the Chicago Committee.
Presentation of the President-Elect, Mrs. David W. Thomas.
Minutes of the Twenty-First Annual Meeting, Mrs. David Berg, Recording Secretary.
Roll Call, Mrs. David Berg.
Convention Rules of Order.
Credentials and Registration, Mrs. Carlton E. Wertz, chairman.
President's Message, Mrs. Eben J. Carey.
Reports of Officers:
Recording Secretary, Mrs. David Berg.
Corresponding Secretary, Mrs. Charles Fidler.

Treasurer, Mrs. Harold F. Wahlquist.

Auditor. To be read by the Recording Secretary.

Parliamentarian, Mrs. Clarence G. Goodwin.

12:30 p. m. Luncheon in honor of Mrs. Eben J. Carey, President Ball Room (lobby floor). Tickets \$2. Guest speaker: Vice Admiral Ross T. McIntire, Surgeon General, U. S. Navy.

2:30 p. m. Afternoon Session: Reports of Directors: Mrs. Frank N. Haggard, Mrs. Frank L. Davis, Mrs. William J. Butler, Mrs. David B. Allman, Mrs. James P. Simonds, Mrs. W. W. King, Mrs. Jesse D. Hamer. Reports of Chairmen of Standing and Special Committees: Finance, Mrs. G. E. McDonnell; Hygeia, Mrs. Arthur I. Edison; Legislation, Mrs. Luther H. Kice; Organization, Mrs. Eastace A. Allen; Press and Publicity, Mrs. William H. Goodson; Program, Mrs. Oscar W. Friske; Public Relations, Mrs. Frank P. Dwyer; Revisions, Mrs. Roscoe E. Mosiman; War Participation, Mrs. Rollo K. Packard; Central Office, Mrs. James P. Simonds. Report of Historian, Mrs. David B. Ludwig. Report of Bulletin Circulation, Miss Margaret Wolfe.

5 p. m. Tea honoring Mrs. Eben J. Carey, president, and Mrs. David W. Thomas, president-elect, for the members of the National Board of Directors and State Delegates. Hostess: Woman's Auxiliary to the Chicago Medical Society. Hotel Knickerbocker, Ballroom.

8 p. m. Palmer House, Grand Ballroom. Opening General Meeting of the House of Delegates of the American Medical Association. Members of the Woman's Auxiliary and guests are welcome.

WEDNESDAY, JUNE 14

10 a. m. General Session of the House of Delegates of the Woman's Auxiliary to the American Medical Association. Towne Room (fourteenth floor). Presiding, Mrs. Eben J. Carey, president; minutes, Mrs. David Berg; announcements, Mrs. Roy M. Hutchison; credentials and registration, Mrs. Carlton E. Wertz; resolutions, Mrs. Arthur B. McGlothlan; reports of state presidents.

12:30 p. m. Luncheon in honor of the past presidents of the Woman's Auxiliary to the American Medical Association, Ball Room (lobby floor). Tickets \$2. Guest speaker and guests of honor, Dr. Herman L. Kretschmer, President-Elect, American Medical Association; Dr. James E. Paullin, President, American Medical Association; Dr. Morris Fishbein, Editor of THE JOURNAL and HYGEIA.

2:30 p. m. Afternoon Session: Report of Nominating Committee, Mrs. Roscoe E. Mosiman; election of officers; installation of officers and presentation of president's pin, Mrs. Augustus S. Keck; inaugural address, Mrs. David W. Thomas; minutes, Mrs. David Berg.

5 p. m. Museum of Science and Industry (58th Street and the Lake). Tour of exhibits and buffet supper (tickets can be secured at registration desk).

THURSDAY, JUNE 15

10 a. m. Executive Committee meeting, Committee Room (fourteenth floor): presiding, Mrs. David W. Thomas.

10:30 a. m. Meeting of Board of Directors, committee room (fourteenth floor): presiding, Mrs. David W. Thomas.

Chicago Committee

Mrs. Roy M. HUTCHISON, Chairman

Mrs. ALFRED F. GARRETT	Mrs. M. A. NIX
Mrs. M. RAY HADDON	Mrs. ROLLO K. PACKARD
Mrs. THEODORE JOHNSTON	Mrs. WILLIAM RAIN
Mrs. CLYDE R. LANDIS	Mrs. CALVIN SHORT
Mrs. G. HENRY MUNDT	Mrs. FREDERICK TICE

GOLF TOURNAMENT

The American Medical Golfing Association will hold its twenty-ninth annual tournament at Flossmoor Country Club, Chicago, on Monday, June 12.

TROPHIES AND PRIZES

Thirty-six holes of golf will be played in competition for the eight major trophies and many prizes in the eight events.

Trophies will be awarded for the Association Championship, the Will Walter Trophy; the Association Handicap Championship, the Detroit Trophy; Championship Flight, First Gross, the St. Louis Trophy; Championship Flight, First Net, the President's Trophy; Eighteen Hole Championship, the Golden State Trophy; Eighteen Hole Handicap Championship, the Ben Thomas Trophy and the Atlantic City Trophy; Maturity Event, the Minneapolis Trophy, and the Oldguard Championship, the Wendell Phillips Trophy.

CHAMPIONSHIP COURSE

Flossmoor Country Club is one of the finest golf courses in America. It can be reached more readily than any other golf club in the Chicago district by taking the Illinois Central to one-quarter mile from the club; trains will be met by automobiles to take golfers direct to the club.

COMMITTEES ON ARRANGEMENTS

Owing to the death last September of Dr. John B. Morgan, president of the A. M. G. A., as well as to the fact that Dr. Waltman Walters, first vice president, is with the Navy in the South Pacific, Dr. Harry E. Mock, Chicago, the immediate past president of the Association, with the aid of all living past

presidents, has formed a committee of direction for this year's tournament.

The Chicago Committee on Arrangements is under the chairmanship of Dr. Charles E. Shannon, 104 South Michigan Avenue, Chicago, assisted by Drs. John M. Dorsey, Eugene A. Edwards, Johnson F. Hammond, Robert J. Hawkins, Carl Ireneus Jr. and LeRoy H. Sloan.

APPLICATION FOR MEMBERSHIP

All male Fellows of the American Medical Association are cordially invited to become members of the American Medical Golfing Association. Write Executive Secretary Bill Burns, 2020 Olds Tower, Lansing 8, Mich., for application blank. Participants in the tournament are required to present their home club handicap, signed by the club secretary, or to accept a handicap set by the A. M. G. A. handicap committee. No handicap over 30 is allowed. A Fellow absent from the annual dinner, which follows the tournament at Flossmoor, forfeits his rights to a trophy or prize.

Past President Mock anticipates that over one hundred Fellows of the A. M. G. A. will visit Flossmoor June 12 to enjoy a day of much needed relaxation.

PRELIMINARY PROGRAM OF THE SCIENTIFIC ASSEMBLY

GENERAL SCIENTIFIC MEETINGS

Grand Ballroom, Fourth Floor, Palmer House

MONDAY, JUNE 12—2 to 3:30 P. M.

PANEL DISCUSSION ON TROPICAL MEDICINE

BRIGADIER GENERAL HUGH J. MORGAN, Army of the United States, Moderator

Essayists:

LIEUTENANT COLONEL FRANCIS R. DIEUAIDE, Medical Corps, Army of the United States.

ALBERT V. HARDY, U. S. P. H. S.

COMMANDER OMAR J. BROWN (MC), U.S.N.R.

Intermission of ten minutes.

MONDAY, JUNE 12—3:40 TO 5:15 P. M.

PANEL DISCUSSION ON CHEMOTHERAPY

WESLEY W. SPINK, Minneapolis, Moderator
The Therapeutic Indications of the Sulfonamides and Penicillin.

FRANCIS G. BLAKE, New Haven, Conn.
The Prophylactic Value of the Sulfonamides.

W. BARRY WOOD JR., St. Louis.
Penicillin Therapy.

MAJOR MICHAEL E. DEBAKEY, Medical Corps, Army of the United States.

TUESDAY, JUNE 13—9:30 A. M.

PANEL DISCUSSION ON PLASMA AND BLOOD SUBSTITUTES

CHARLES A. DOAN, Columbus, Ohio, Moderator
Essayists: OWEN H. WANGENSTEEN, Minneapolis.

CAPTAIN L. R. NEWHOUSER (MC), U.S.N.R.

MAX M. STRUMIA, Bryn Mawr, Pa.

ELMER L. DEGOWIN, Iowa City.

TUESDAY, JUNE 13—2:30 P. M.

PANEL DISCUSSION ON NEUROPSYCHIATRY

COLONEL FRANKLIN G. EBAUGH, Medical Corps, Army of the United States, Moderator
Methods of Examination in the Army Air Forces.

LIEUTENANT COLONEL JOHN M. MURRAY, Medical Corps, Army of the United States.
Neurologic Problems.

MAJOR WILLIAM H. EVERTS, Medical Corps, Army of the United States.
Psychomatic Problems. JACK R. EWALT, Galveston, Texas.

Treatment of War Neuroses.

LIEUTENANT COLONEL ROY R. GRINKER, Medical Corps, Army of the United States.

THE OPENING GENERAL MEETING

Grand Ball Room, Palmer House

Tuesday, June 13—8 p. m.

Music.

Call to Order by the President, JAMES E. PAULLIN.

Invocation.

Music.

Introduction and Installation of President-Elect HERMAN L. KRETSCHMER, Chicago.

Address. HERMAN L. KRETSCHMER, President.

Music.

Presentation of Medal to Retiring President, JAMES E. PAULLIN.

ROGER I. LEE, Chairman of the Board of Trustees.

Presentation of Distinguished Service Medal, HERMAN L. KRETSCHMER, President.

Music.

THE PROGRAMS OF THE SECTIONS

Outline of the Scientific Proceedings—The Preliminary Program and the Official Program

The following papers are announced to be read before the various sections. The order here is not necessarily the order that will be followed in the Official Program, nor is the list complete. The Official Program will be similar to the programs issued in previous years and will contain the final program of each section with abstracts of the papers, as well as lists of committees, program of the Opening General Meeting, list of entertainments, map of Chicago and other information. To prevent misunderstandings and protect the interest of advertisers, it is here announced that this Official Program will contain no advertisements. It is copyrighted by the American Medical Association and will not be distributed before the session. A copy will be given to each Fellow on registration.

SECTION ON PRACTICE OF MEDICINE

MEETS IN GRAND BALLROOM, PALMER HOUSE

OFFICERS OF SECTION

Chairman—BURRELL O. RAULSTON, Los Angeles.

Vice Chairman—CHARLES C. WOLFERTH, Philadelphia.

Secretary—W. D. STROUP, Philadelphia.

Executive Committee—FRED M. SMITH, Iowa City; ROY W. SCOTT, Cleveland; BURRELL O. RAULSTON, Los Angeles.

Wednesday, June 14—9 a. m.

The Effects of Penicillin in the Treatment of Gonorrhea (Lantern Demonstration).

COLONEL THOMAS B. TURNER, Medical Corps, Army of the United States.

- Weakness and Fatigue (Lantern Demonstration).
FRANK N. ALLAN, Boston.
- The Frank-Billings Lecture: Mediastinal Emphysema.
LOUIS HAMMAN, Baltimore.
- Epidemic Nausea, Vomiting and Diarrhea (Lantern Demonstration).
HOBART A. REIMANN, Philadelphia.
- Treatment of Diabetic Coma. HOWARD F. ROOT, Boston.

Thursday, June 15—9 a. m.

Election of Officers

- Chairman's Address: Contributions of Chemistry and Physics to the Practice of Medicine (Lantern Demonstration).
BURRELL O. RAULSTON, Los Angeles.
- Thrombocytopenic Purpura, with Special Reference to Its Diagnosis by Improved Laboratory Methods.
S. P. LUCIA, San Francisco.
- The Health Needs of the Nation as Reflected by the Examination of Thirteen Million Registrants (Lantern Demonstration).
COLONEL LEONARD G. ROWNTREE, Medical Corps, Army of the United States.
- Transient Hypertension: Observations Based on Analysis of the Medical Records of 22,700 Officers of the United States Army (Lantern Demonstration).
BRIGADIER GENERAL CHARLES C. HILLMAN, United States Army; ROBERT L. LEVY, New York; WILLIAM D. STROUD, Philadelphia, and PAUL D. WHITE, Boston.
- The Results of Radical Sympathectomy in Hypertension (Lantern Demonstration). REGINALD H. SMITHWICK, Boston.
- Treatment of Kidney Disease and Hypertensive Vascular Disease with Rice Diet (Lantern Demonstration).
WALTER KEMPNER, Durham, N. C.

Friday, June 16—9 a. m.

JOINT MEETING WITH SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

- Rheumatic Fever in the Army Air Forces (Lantern Demonstration).
COLONEL W. PAUL HOLBROOK, Medical Corps, Army of the United States.
- Postvaccinal Hepatitis Due to Yellow Fever Vaccine (Lantern Demonstration).
COLONEL JULIEN E. BENJAMIN, Medical Corps, Army of the United States.
- Infections Hepatitis (Lantern Demonstration).
JOHN R. PAUL, New Haven, Conn.

SYMPOSIUM FOLLOWED BY PANEL DISCUSSION ON VITAMINS, AMINO ACIDS AND ENZYMES

- MORRIS FISHER, Moderator of Panel Discussion
- The Amino Acid Requirements of Man (Lantern Demonstration). WILLIAM C. ROSE, Urbana, Ill.
- The Rationale for the Use of Vitamins in the Therapy of Shock and Anoxia.
WILLIAM M. GOVIER, Winston-Salem, N. C.
- Adult Needs of Vitamins A and C (Lantern Demonstration).
ELMER L. SEVINGHAUS, Madison, Wis.
- The Dilemma of Subclinical Vitamin Deficiencies (Lantern Demonstration). A. J. CARLSON, Chicago.
- Vitamins and the Practice of Medicine (Lantern Demonstration).
TOM D. SPIES, Birmingham, Ala.

SECTION ON SURGERY, GENERAL AND ABDOMINAL

MEETS IN GRAND BALLROOM, HOTEL SHERMAN

OFFICERS OF SECTION

- Chairman—FREDERICK A. COLLIER, Ann Arbor, Mich.
- Vice Chairman—LESTER R. DRAGSTEDT, Chicago.
- Secretary—ALTON OCHSNER, New Orleans.
- Executive Committee—LLOYD NOLAND, Fairfield, Ala.; ARTHUR W. ALLEN, Boston; FREDERICK A. COLLIER, Ann Arbor, Mich.

Wednesday, June 14—2 p. m.

- Alcoholic Injection of the Lumbar Sympathetic Trunk in Cases of Peripheral Vascular Insufficiency When Surgical Sympathectomy Is Contraindicated (Lantern Demonstration).
GEORGE D. LILLY, Miami, Fla.
- Discussion to be opened by ARTHUR W. ALLEN, Boston.

- The Effect of Activity, Rest, Natural Sleep, Sodium Amytal, Pentothal Sodium, Chloralose and Ether on Experimental Neurogenic Hypertension (Lantern Demonstration).
KEITH S. GRIMSON, Durham, N. C.
- Discussion to be opened by GEZA DE TAKATS and EMMET B. BAY, Chicago.

- The Management of Traumatic Aneurysms and Arteriovenous Fistulas.
I. A. BIGGER, Richmond, Va.
- Discussion to be opened by JOHN DEJ. PEMBERTON, Rochester, Minn.

- The Causalgic State in Peace and War (Lantern Demonstration).
GEZA DE TAKATS, Chicago.
- Discussion to be opened by WARREN H. COLE, Chicago.

- The Preservation of the Sphincters and Intestinal Continuity in Operation for Carcinoma of the Rectal Ampulla (Lantern Demonstration).

- OWEN H. WANGENSTEEN, Minneapolis.
- Discussion to be opened by ARTHUR W. ALLEN, Boston, and FREDERICK A. COLLIER, Ann Arbor, Mich.

- An Appraisal of the Results of Surgery in the Treatment of Regional Ileitis (Lantern Demonstration).

- JOHN H. GARLOCK and BURRILL B. CROHN, New York.
- Discussion to be opened by HENRY W. CAVE, New York, and CLAUDE F. DIXON, Rochester, Minn.

- Problems in the Surgical Treatment of Congenital Megacolon.

- RAWLEY M. PENICK JR., New Orleans.
- Discussion to be opened by J. ARNOLD BARGEN, Rochester, Minn., and REGINALD H. SMITHWICK, Boston.

Thursday, June 15—2 p. m.

Election of Officers

- Gallstones: The Time Factor in Relation to the Development of Complications (Lantern Demonstration).

- CARL BEARSE, Boston.
- Discussion to be opened by I. S. OTIS, Meriden, Conn., and JOHN M. FALLON, Worcester, Mass.

- Chairman's Address: Blood Loss During Operation (Lantern Demonstration).

- FREDERICK A. COLLIER, Ann Arbor, Mich.

- Potential Dangers of Nontoxic Nodular Goiter (Lantern Demonstration).

- WARREN H. COLE, DANIEL P. SLAUGHTER and LEWIS J. ROSSITER, Chicago.

- Discussion to be opened by FRANK H. LAHEY, Boston, and GEORGE M. CURTIS, Columbus, Ohio.

- The "Suture" of Wounds by Plasma-Thrombin Adhesion (Lantern Demonstration).

- FORREST O. J. YOUNG, Rochester, N. Y.
- Discussion to be opened by R. T. TIDRICK and E. D. WARNER, Iowa City.

- A Report of the Clinical Effects of Surgical and X-Ray Castration in Mammary Cancer.

- FRANK E. ADAIR and NORMAN TREVES, New York; LIEUTENANT COMMANDER JOSEPH H. FARROW (MC), U.S.N.R., and ISABELLE M. SCHARNAGEL, New York.

- Discussion to be opened by LAWRENCE A. POMEROY, Cleveland, and J. SHELTON HORSLEY, Richmond, Va.

- Plasma Cell Mastitis (Lantern Demonstration).

- WILLARD H. PARSONS and JOHN C. HENTHORNE, Vicksburg, Miss., and MAJOR R. LEE CLARK JR., Medical Corps, Army of the United States.

- Discussion to be opened by WARREN H. COLE, Chicago, and R. L. SANDERS, Memphis, Tenn.

Friday, June 16—2 p. m.

JOINT MEETING WITH SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

- Inflammatory Lesions of the Stomach and Duodenum: Medical Aspects (Lantern Demonstration).

- A. H. AARON, Buffalo.

- Surgical Aspect. FRANK H. LAHEY, Boston.

- Discussion to be opened by ALBERT F. R. ANDRESEN, Brooklyn, and ALTON OCHSNER, New Orleans.

- Inflammatory Lesions of the Small Intestine: Medical Aspect (Lantern Demonstration).

- HENRY L. BOCKUS, Philadelphia.

- Surgical Aspect. HENRY W. CAVE, New York.

- Discussion to be opened by BURRILL B. CROHN, New York, and VERNON C. DAVIS, Chicago.

Inflammatory Lesions of the Colon:

- Medical Aspect (Lantern Demonstration).
J. ARNOLD BARGEN, Rochester, Minn.
Surgical Aspect (Lantern Demonstration).
THOMAS E. JONES, Cleveland.
Discussion to be opened by DONOVAN C. BROWNE, New Orleans, and RAYMOND W. MCNEALY, Chicago.

SECTION ON OBSTETRICS AND GYNECOLOGY

MEETS IN GRAND BALLROOM, HOTEL SHERMAN
OFFICERS OF SECTION

- Chairman—LOUIS E. PHANEUF, Boston.
Vice Chairman—WENDELL M. LONG, Oklahoma City.
Secretary—PHILIP F. WILLIAMS, Philadelphia.
Executive Committee—NORMAN F. MILLER, Ann Arbor, Mich.;
WALTER T. DANNREUTH, New York; LOUIS E. PHANEUF, Boston.

Wednesday, June 14—9 a. m.

- The Intrauterine Location of the Placenta and Its Influence on Fetal Presentation (Lantern Demonstration).
RICHARD TORPIN, Augusta, Ga.
Anemia in Pregnancy: A Correlation of the Bone Marrow and Peripheral Blood Findings (Lantern Demonstration).
LOUIS R. LIMARZI and JOHN R. WOLFF, Chicago.
The Overweight Obstetric Patient.
WILLIAM F. MENGERT, Dallas, Texas.
Diabetes in Pregnancy (Lantern Demonstration).
PRISCILLA WHITE, Boston.
Protein Deficiencies in Pregnancy (Lantern Demonstration).
RUPERT E. ARNELL, New Orleans, and DANIEL W. GOLDMAN, Shreveport, La.
Nutrition in Pregnancy (Lantern Demonstration).
CURTIS J. LUND, Minneapolis.

Thursday, June 15—9 a. m.

- Election of Officers
The Value of Periodic Pelvic Examination in the Control of Cancer of the Uterus: Report of a Five Year Research (Lantern Demonstration).
CATHERINE MACFARLANE and MARGARET C. STURGIS, Philadelphia.
The Role of Injudicious Hormonal Therapy in the Delayed Diagnosis of Uterine Cancer.
LEWIS C. SCHEFFEY and DAVID M. FARELL, Philadelphia.
Recognition and Management of the Patient Predisposed to Adenocarcinoma of the Uterus (Lantern Demonstration).
CLYDE L. RANDALL, Buffalo.
Evaluation of Radiation in the Treatment of Carcinoma of the Corpus (Lantern Demonstration).
JAMES A. CORSCADEN, New York.
The Treatment of Uterine Prolapse and Allied Conditions (Lantern Demonstration).
RICHARD W. TELINDE, Baltimore.
Chairman's Address: The Progress of Gynecology During the Last Quarter of a Century.
LOUIS E. PHANEUF, Boston.

Friday, June 16—9 a. m.

- JOINT MEETING WITH SECTION ON UROLOGY
Pyelitis in Pregnancy (Lantern Demonstration).
E. GRANVILLE CRABTREE, Boston.
Influence of Gynecologic Pathology on Urinary Tract Diseases (Lantern Demonstration).
J. M. HUNDLEY JR., Baltimore.
Problems of Diagnosis of Infertility in the Female (Lantern Demonstration).
GEORGE H. GARDNER, Chicago.
Dysurias in the Female.
HERMAN L. KRETSCHNER and NOBLE SPROAT HEANEY, Chicago.
The Female Urethra (Lantern Demonstration).
A. I. FOLSONI, Dallas, Texas.
Discussion to be opened by REED M. NESBIT, Ann Arbor, Mich., and VINCENT J. O'CONOR, Chicago.

SECTION ON OPHTHALMOLOGY

MEETS IN BAL TABARIN ROOM, HOTEL SHERMAN

OFFICERS OF SECTION

- Chairman—CONRAD BERENS, New York.
Vice Chairman—ROBERT VON DER HEYDT, Chicago.
Secretary—R. J. MASTERS, Indianapolis.
Executive Committee—ALBERT C. SNELL, Rochester, N. Y.;
LAWRENCE T. POST, St. Louis; CONRAD BERENS, New York.

Wednesday, June 14—2 p. m.

- Chairman's Address. CONRAD BERENS, New York.
Address of Guest of Honor (Lantern Demonstration).
WILLIAM L. BENEDICT, Rochester, Minn.
Progress Report on the Treatment of Bilateral Retinoblastoma by Surgery and Irradiation with the Purpose of Conserving Vision in One Eye (Lantern Demonstration).
HAYES MARTIN and ALGERNON B. REESE, New York.
Neuroparalytic Keratitis (Ocular Complications Following Operations for Trigeminal Neuralgia) (Lantern Demonstration).
C. L. PANNABECKER, Ann Arbor, Mich.
Meridional Aniseikonia at Oblique Axes (Lantern Demonstration).
HERMANN M. BURIAN and KENNETH N. OGLE, Hanover, N. H.

Thursday, June 15—2 p. m.

- Election of Officers
In Search of Gonioscopic Correlates of Responsiveness to Miotics in Glaucoma (Lantern Demonstration).
PETER C. KRONFELD, Chicago.
Choice of Operation in Glaucoma (Lantern Demonstration).
PAUL A. CHANDLER, Boston.
Dibutoline: A New Mydriatic and Cycloplegic Drug (Lantern Demonstration).
KENNETH C. SWAN, Iowa City.
The Management of Traumatic Hyphemia (Lantern Demonstration).
RALPH O. RYCHENER, Memphis, Tenn.
Nonmagnetic Intraocular Foreign Bodies (Lantern Demonstration).
HARVEY E. THORPE, Pittsburgh.

Friday, June 16—9 a. m.

JOINT MEETING WITH SECTION ON LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY

SYMPOSIUM ON THE TREATMENT OF CHRONIC DACRYOCYSTITIS

- Discussion of Dacryocystitis from the Point of View of the Ophthalmologist (Lantern and Motion Picture Demonstration).
HAROLD GIFFORD JR., Omaha.
Treatment of Chronic Dacryocystitis from the Point of View of the Rhinologist (Lantern Demonstration).
LAVERNE B. SPAKE, Kansas City, Kan.
Discussion to be opened by CHARLES T. PORTER, Boston.

SYMPOSIUM ON THE USE OF PENICILLIN IN THE TREATMENT OF DISEASES OF THE EYE, EAR, NOSE AND THROAT

- Use of Penicillin in Diseases of the Eye (Lantern Demonstration).
LIEUTENANT COLONEL JOHN E. L. KEYES, Medical Corps, Army of the United States.
The Use of Penicillin in Diseases of the Ear (Lantern Demonstration).
CAPTAIN C. A. SWANSON (MC), U.S.N., and LIEUTENANT D. C. BAKER (MC), U.S.N.R.
The Use of Penicillin in Diseases of Nose and Throat (Lantern Demonstration).
CAPTAIN F. J. PUTNEY, Medical Corps, Army of the United States.
Discussion to be opened by MAJOR ELMER A. VORISEK, Medical Corps, Army of the United States, and MAJOR WALTER J. AAGESEN, Medical Corps, Army of the United States.

- Weakness and Fatigue (Lantern Demonstration).
FRANK N. ALLAN, Boston.
- The Frank-Billings Lecture: Mediastinal Emphysema.
LOUIS HANIMAN, Baltimore.
- Epidemic Nausea, Vomiting and Diarrhea (Lantern Demonstration).
HOWARD A. REIMANN, Philadelphia.
- Treatment of Diabetic Coma.
HOWARD F. ROOT, Boston.

Thursday, June 15—9 a. m.

Election of Officers

- Chairman's Address: Contributions of Chemistry and Physics to the Practice of Medicine (Lantern Demonstration).
BURRELL O. RAULSTON, Los Angeles.
- Thrombocytopenic Purpura, with Special Reference to Its Diagnosis by Improved Laboratory Methods.
S. P. LUCIA, San Francisco.
- The Health Needs of the Nation as Reflected by the Examination of Thirteen Million Registrants (Lantern Demonstration).
COLONEL LEONARD G. ROWNTREE, Medical Corps, Army of the United States.

- Transient Hypertension: Observations Based on Analysis of the Medical Records of 22,700 Officers of the United States Army (Lantern Demonstration).
BRIGADIER GENERAL CHARLES C. HILLMAN, United States Army; ROBERT L. LEVY, New York; WILLIAM D. STROUD, Philadelphia, and PAUL D. WHITE, Boston.

- The Results of Radical Sympathectomy in Hypertension (Lantern Demonstration).
REGINALD H. SMITHWICK, Boston.
- Treatment of Kidney Disease and Hypertensive Vascular Disease with Rice Diet (Lantern Demonstration).
WALTER KEMPNER, Durham, N. C.

Friday, June 16—9 a. m.

JOINT MEETING WITH SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

- Rheumatic Fever in the Army Air Forces (Lantern Demonstration).
COLONEL W. PAUL HOLBROOK, Medical Corps, Army of the United States.
- Postvaccinal Hepatitis Due to Yellow Fever Vaccine (Lantern Demonstration).
COLONEL JULIEN E. BENJAMIN, Medical Corps, Army of the United States.
- Infectious Hepatitis (Lantern Demonstration).
JOHN R. PAUL, New Haven, Conn.

SYMPOSIUM FOLLOWED BY PANEL DISCUSSION ON VITAMINS, AMINO ACIDS AND ENZYMES

MORRIS FISHBEIN, Moderator of Panel Discussion

- The Amino Acid Requirements of Man (Lantern Demonstration).
WILLIAM C. ROSE, Urbana, Ill.
- The Rationale for the Use of Vitamins in the Therapy of Shock and Anoxia.
WILLIAM M. GOVIER, Winston-Salem, N. C.
- Adult Needs of Vitamins A and C (Lantern Demonstration).
ELMER L. SEVINGHAUS, Madison, Wis.
- The Dilemma of Subclinical Vitamin Deficiencies (Lantern Demonstration).
A. J. CARLSON, Chicago.
- Vitamins and the Practice of Medicine (Lantern Demonstration).
TOM D. SPIES, Birmingham, Ala.

SECTION ON SURGERY, GENERAL AND ABDOMINAL

MEETS IN GRAND BALLROOM, HOTEL SHERMAN
OFFICERS OF SECTION

- Chairman—FREDERICK A. COLLIER, Ann Arbor, Mich.
- Vice Chairman—LESTER R. DRAGSTEDT, Chicago.
- Secretary—ALTON OCHSNER, New Orleans.
- Executive Committee—LLOYD NOLAND, Fairfield, Ala.; ARTHUR W. ALLEN, Boston; FREDERICK A. COLLIER, Ann Arbor, Mich.

Wednesday, June 14—2 p. m.

- Alcoholic Injection of the Lumbar Sympathetic Trunk in Cases of Peripheral Vascular Insufficiency When Surgical Sympathectomy Is Contraindicated (Lantern Demonstration).
GEORGE D. LILLY, Miami, Fla.
- Discussion to be opened by ARTHUR W. ALLEN, Boston.

- The Effect of Activity, Rest, Natural Sleep, Sodium Amytal, Pentothal Sodium, Chloralose and Ether on Experimental Neurogenic Hypertension (Lantern Demonstration).
KEITH S. GRIMSON, Durham, N. C.
- Discussion to be opened by GEZA DE TAKATS and EMMET B. BAY, Chicago.

- The Management of Traumatic Aneurysms and Arteriovenous Fistulas.
I. A. BIGGER, Richmond, Va.
- Discussion to be opened by JOHN DEJ. PEMBERTON, Rochester, Minn.

- The Causalgic State in Peace and War (Lantern Demonstration).
GEZA DE TAKATS, Chicago.
- Discussion to be opened by WARREN H. COLE, Chicago.

- The Preservation of the Sphincters and Intestinal Continuity in Operation for Carcinoma of the Rectal Ampulla (Lantern Demonstration).
OWEN H. WANGENSTEEN, Minneapolis.
- Discussion to be opened by ARTHUR W. ALLEN, Boston, and FREDERICK A. COLLIER, Ann Arbor, Mich.

- An Appraisal of the Results of Surgery in the Treatment of Regional Ileitis (Lantern Demonstration).
JOHN H. GARLOCK and BURRILL B. CROHN, New York.
- Discussion to be opened by HENRY W. CAVE, New York, and CLAUDE F. DIXON, Rochester, Minn.

- Problems in the Surgical Treatment of Congenital Megacolon.
RAWLEY M. PENICK JR., New Orleans.
- Discussion to be opened by J. ARNOLD BARGEN, Rochester, Minn., and REGINALD H. SMITHWICK, Boston.

Thursday, June 15—2 p. m.

Election of Officers

- Gallstones: The Time Factor in Relation to the Development of Complications (Lantern Demonstration).
CARL BEARSE, Boston.
- Discussion to be opened by I. S. OTIS, Meriden, Conn., and JOHN M. FALLON, Worcester, Mass.

- Chairman's Address: Blood Loss During Operation (Lantern Demonstration).
FREDERICK A. COLLIER, Ann Arbor, Mich.

- Potential Dangers of Nontoxic Nodular Goiter (Lantern Demonstration).
WARREN H. COLE, DANIEL P. SLAUGHTER and LEWIS J. ROSSITER, Chicago.
- Discussion to be opened by FRANK H. LAHEY, Boston, and GEORGE M. CURTIS, Columbus, Ohio.

- The "Suture" of Wounds by Plasma-Thrombin Adhesion (Lantern Demonstration).
FORREST O. J. YOUNG, Rochester, N. Y.
- Discussion to be opened by R. T. TIDRICK and E. D. WARNER, Iowa City.

- A Report of the Clinical Effects of Surgical and X-Ray Castration in Mammary Cancer.
FRANK E. ADAIR and NORMAN TREVES, New York; LIEUTENANT COMMANDER JOSEPH H. FARROW (MC), U.S.N.R., and ISABELLE M. SCHIARNAGEL, New York.
- Discussion to be opened by LAWRENCE A. POMEROY, Cleveland, and J. SHELTON HORSLEY, Richmond, Va.

- Plasma Cell Mastitis (Lantern Demonstration).
WILLARD H. PARSONS and JOHN C. HENTHORNE, Vicksburg, Miss., and MAJOR R. LEE CLARK JR., Medical Corps, Army of the United States.
- Discussion to be opened by WARREN H. COLE, Chicago, and R. L. SANDERS, Memphis, Tenn.

Friday, June 16—2 p. m.

JOINT MEETING WITH SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

- Inflammatory Lesions of the Stomach and Duodenum: Medical Aspects (Lantern Demonstration).
A. H. AARON, Buffalo.

- Surgical Aspect.
FRANK H. LAHEY, Boston.
- Discussion to be opened by ALBERT F. R. ANDRESEN, Brooklyn, and ALTON OCHSNER, New Orleans.

- Inflammatory Lesions of the Small Intestine: Medical Aspect (Lantern Demonstration).
HENRY L. BOCKUS, Philadelphia.

- Surgical Aspect.
HENRY W. CAVE, New York.
- Discussion to be opened by BURRILL B. CROHN, New York, and VERNON C. DAVID, Chicago.

The Role of the Cardiac Clinic in the Rheumatic Heart Program. DAVID D. RUTSTEIN, New York.
Experience with Rheumatic Fever in the Armed Forces (Lantern Demonstration).
MAJOR A. C. H. VAN RAVENSWAAY, Medical Corps, Army of the United States.
Discussion to be opened by JOHN R. PAUL, New Haven, Conn.; STANLEY GIBSON, Chicago, and COLONEL W. PAUL HOLBROOK, Medical Corps, Army of the United States.

SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

MEETS IN TOWER ROOM, UPPER LEVEL, HOTEL STEVENS
OFFICERS OF SECTION

Chairman—TINSLEY R. HARRISON, Dallas, Texas.
Vice Chairman—E. V. ALLEN, Rochester, Minn.
Secretary—DWIGHT L. WILBUR, San Francisco.
Executive Committee—C. M. GRUBER, Philadelphia; WALLACE M. YATER, Washington, D. C.; TINSLEY R. HARRISON, Dallas, Texas.

Wednesday, June 14—2 p. m.

The Use of Sulfadiazine as a Prophylactic Against Respiratory Disease (Lantern Demonstration).
CAPTAIN RICHARD G. HODGES, Medical Corps, Army of the United States.
Wound Healing: An Experimental Study of Water Soluble Chlorophyll Derivatives in Conjunction with Various Antibactericidal Agents (Lantern Demonstration).
LAWRENCE W. SMITH, Philadelphia.
Insulin Mixtures in the Treatment of Diabetes: Variable versus Fixed Ratios of Insulin and Protamine Zinc Insulin (Lantern Demonstration).
DAVID ADLERSBERG and HENRY DOLGER, New York.
Influence of Neostigmine on Eclamptic Patients and Choline Esterase Activity of Normal and Preeclamptic Human Placentas (Lantern Demonstration).
R. A. WOODBURY, Augusta, Ga., and LIEUTENANT P. H. FRIED, Medical Corps, Army of the United States.
Penicillin in the Treatment of Meningitis (Lantern Demonstration).
LIEUTENANT COMMANDER DAVID H. ROSENBERG (MC), U.S.N.R., and LIEUTENANT P. A. ARLING (MC), U.S.N.R.
Thiouracil in the Treatment of Thyrotoxicosis (Lantern Demonstration).
ROBERT H. WILLIAMS, Boston.
A Study of Liver Function in Therapeutic Malaria (Lantern Demonstration).
M. G. FREDRICKS and F. W. HOFFBAUER, Minneapolis.

Thursday, June 15—2 p. m.

Election of Officers

SYMPOSIUM ON THE ABUSE OF REST IN THE TREATMENT OF DISEASE

Chairman's Address: The Abuse of Rest as a Therapeutic Measure in Patients with Cardiovascular Disease (Lantern Demonstration).
TINSLEY R. HARRISON, Dallas, Texas.
The Abuse of Rest as a Means of Treatment in Physical Medicine (Lantern Demonstration).
FRANK H. KRUSEN, Rochester, Minn.
The Abuse of Rest as a Means of Treatment in Obstetrics and Gynecology (Lantern Demonstration).
NICHOLSON J. EASTMAN, Baltimore.
The Evil Sequels of Complete Bed Rest (Lantern Demonstration).
WILLIAM DICK, Los Angeles.
The Abuse of Rest as a Means of Treatment in Orthopedic Surgery (Lantern Demonstration).
RALPH K. GHORMLEY, Rochester, Minn.
The Abuse of Rest as a Means of Treatment in Neuropsychiatry (Motion Picture Demonstration).
KARL A. MENNINGER, Topeka, Kan.

Friday, June 16—9 a. m.

JOINT MEETING WITH SECTION ON PRACTICE OF MEDICINE
• IN GRAND BALLROOM, PALMER HOUSE

Rheumatic Fever in the Army Air Forces (Lantern Demonstration).
COLONEL W. PAUL HOLBROOK, Medical Corps, Army of the United States.

Postvaccinal Hepatitis Due to Yellow Fever Vaccine (Lantern Demonstration).
COLONEL JULIEN E. BENJAMIN, Medical Corps, Army of the United States.
Infectious Hepatitis (Lantern Demonstration).
JOHN R. PAUL, New Haven, Conn.

SYMPOSIUM FOLLOWED BY PANEL DISCUSSION ON VITAMINS, AMINO ACIDS AND ENZYMES

MORRIS FISHBEIN, Moderator of Panel Discussion

The Amino Acid Requirements of Man (Lantern Demonstration).
WILLIAM C. ROSE, Urbana, Ill.
The Rationale for the Use of Vitamins in the Therapy of Shock and Anoxia. WILLIAM M. GOVIER, Winston-Salem, N. C.
Adult Needs of Vitamins A and C (Lantern Demonstration).
ELMER L. SEVRINGHAUS, Madison, Wis.
The Dilemma of Subclinical Vitamin Deficiencies (Lantern Demonstration).
A. J. CARLSON, Chicago.
Vitamins and the Practice of Medicine (Lantern Demonstration).
TOM D. SPIES, Birmingham, Ala.

SECTION ON PATHOLOGY AND PHYSIOLOGY

MEETS IN TOWER ROOM, UPPER LEVEL, HOTEL STEVENS

OFFICERS OF SECTION

Chairman—FRANK C. MANN, Rochester, Minn.
Vice Chairman—VIRGIL H. MOON, Philadelphia.
Secretary—J. J. MOORE, Chicago.
Executive Committee—CARL J. WIGGERS, Cleveland; J. P. SIMONDS, Chicago; FRANK C. MANN, Rochester, Minn.

Wednesday, June 14—9 a. m.

Traumatic Ischemic Shock, with Observations on Effects of Environmental Temperature.
HAROLD D. GREEN, Cleveland.
Analysis of Traumatic Shock (Lantern Demonstration).
VIRGIL H. MOON, Philadelphia.
Research on Shock (Lantern Demonstration).
JOSEPH C. AUB, Boston.
Pyloric Sphincter Motility and Its Relation to Gastric Evacuation and Other Phenomena (Lantern Demonstration).
J. P. QUIGLEY, Cleveland, and LIEUTENANT D. A. BRODY, Medical Corps, Army of the United States.
Treatment of Experimental Renal Hypertension with Renal Extracts (Lantern Demonstration).
G. E. WAKERLIN, M. L. GOLDBERG and CLARENCE A. JOHNSON, Chicago.
The Influence of Caffeine Containing Beverage on Gastric Secretion and the Peptic Ulcer Problem (Lantern Demonstration).
A. C. IVY and A. J. ATKINSON, Chicago.

Thursday, June 15—9 a. m.

Chairman's Address: Hypoglycemia and Restoration with Dextrose.
FRANK C. MANN, Rochester, Minn.
The Use of Diasone for the Treatment of Tuberculosis (Lantern Demonstration).
HARRY J. CORPER and MAURICE L. COHN, Denver.
The Diagnosis of Fetal Erythroblastosis (Lantern Demonstration).
ISRAEL DAVIDSON, Chicago.
Hematologic Findings in Syphilis (Lantern Demonstration).
ROY R. KRACKE, WILLIAM R. PLATT and A. M. OSHLAG, Emory University, Ga.
Sudden Death Due to Intravenous Injection in Mercurial Diuresis (Lantern Demonstration).
ITALO F. VOLINI, Chicago; CAPTAIN ROBERT O. LEVITT, Medical Corps, Army of the United States, and MAJOR RICHARD R. MARTIN, Medical Corps, Army of the United States.
Carcinoma in Young Persons.
ROBERT P. MOREHEAD, Winston-Salem, N. C.
A Clinical and Pathologic Study of a Series of Renal Neoplasms (Lantern Demonstration).
TOBIAS WEINBERG, Baltimore.

Friday, June 16—9 a. m.

Election of Officers

Pathology in the War (Lantern Demonstration).
COLONEL J. E. ASH, Medical Corps, United States Army.

WOMAN'S AUXILIARY

Mrs. Roy M. HUTCHISON, Chairman of the Chicago Committee
A most cordial invitation is extended to all Auxiliary members and the wives and guests of physicians present at the American Medical Association meeting to participate in the social functions and attend the sessions of the twenty-second annual meeting of the Woman's Auxiliary to the American Medical Association. Headquarters will be in the Towne Room of the Hotel Knickerbocker, 163 East Walton Place, where all meetings will be held. Please register early and obtain your badge and program. Tickets may be purchased at the registration desk. All meetings will convene at the time scheduled. Please be prompt.

REGISTRATION—FOYER BALL ROOM (LOBBY FLOOR)

Sunday, 2 to 4 p. m.; Monday, 8:30 a. m. to 4 p. m.; Tuesday, 8:30 a. m. to 4 p. m.; Wednesday, 8:30 a. m. to 4 p. m.

Preconvention Meetings

SATURDAY, JUNE 10

- 7 p. m. Finance Committee Meeting, Rose Room (second floor); chairman, Mrs. G. E. McDonnell.

SUNDAY, JUNE 11

- 3 p. m. Nominating Committee Meeting, Rose Room; chairman, Mrs. Roscoe E. Mosiman.
7 p. m. Revisions Committee Meeting, Rose Room; chairman, Mrs. Roscoe E. Mosiman.

MONDAY, JUNE 12

- 10 a. m. Meeting of the Board of Directors, Committee Room (fourteenth floor); presiding, Mrs. Eben J. Carey.
2:30 p. m. Luncheon, Board of Directors (fourteenth floor).
2:30 p. m. Afternoon Session of Meeting of Board of Directors, Committee Room (fourteenth floor).

General Meeting

TUESDAY, JUNE 13

- 10 a. m. Opening Meeting, Towne Room (fourteenth floor); Presiding, Mrs. Eben J. Carey, President.
Invocation, Reverend Joseph M. Eagen, S.J., President, Loyola University, Chicago.
Pledge of Allegiance to the Flag, Lieut. Viola Cawood Flowers, Woman's Army Corps.
Pledge of Loyalty to the Woman's Auxiliary to the American Medical Association, Mrs. Frank N. Haggard.
Greetings, Hon. Edward J. Kelly, Mayor of Chicago.
Address of Welcome, Mrs. M. A. Nix, past president, Woman's Auxiliary to the Illinois State Medical Society.
Response, Mrs. Asher Yaguda, past president, Woman's Auxiliary to the Medical Society of New Jersey.
In Memoriam, Mrs. M. B. Van Cleave.
Introduction of Mrs. Roy M. Hutchison, Chairman of the Chicago Committee.
Presentation of the President-Elect, Mrs. David W. Thomas.
Minutes of the Twenty-First Annual Meeting, Mrs. David Berg, Recording Secretary.
Roll Call, Mrs. David Berg.
Convention Rules of Order.
Credentials and Registration, Mrs. Carlton E. Wertz, chairman.
President's Message, Mrs. Eben J. Carey.
Reports of Officers:
Recording Secretary, Mrs. David Berg.
Corresponding Secretary, Mrs. Charles Fidler.

Treasurer, Mrs. Harold F. Wahlquist.

Auditor, To be read by the Recording Secretary.

Parliamentarian, Mrs. Clarence G. Goodwin.

12:30 p. m. Luncheon in honor of Mrs. Eben J. Carey, President Ball Room (lobby floor). Tickets \$2. Guest speaker: Vice Admiral Ross T. McIntire, Surgeon General, U. S. Navy.

2:30 p. m. Afternoon Session: Reports of Directors: Mrs. Frank N. Haggard, Mrs. Frank L. Davis, Mrs. William J. Butler, Mrs. David B. Allman, Mrs. James P. Simonds, Mrs. W. W. King, Mrs. Jesse D. Hamer. Reports of Chairmen of Standing and Special Committees: Finance, Mrs. G. E. McDonnell; Hygeia, Mrs. Arthur I. Edison; Legislation, Mrs. Luther H. Kice; Organization, Mrs. Eustace A. Allen; Press and Publicity, Mrs. William H. Goodson; Program, Mrs. Oscar W. Friske; Public Relations, Mrs. Frank P. Dwyer; Revisions, Mrs. Roscoe E. Mosiman; War Participation, Mrs. Rollo K. Packard; Central Office, Mrs. James P. Simonds. Report of Historian, Mrs. David B. Ludwig. Report of Bulletin Circulation, Miss Margaret Wolfe.

5 p. m. Tea honoring Mrs. Eben J. Carey, president, and Mrs. David W. Thomas, president-elect, for the members of the National Board of Directors and State Delegates. Hostess: Woman's Auxiliary to the Chicago Medical Society. Hotel Knickerbocker, Ballroom.

8 p. m. Palmer House, Grand Ballroom. Opening General Meeting of the House of Delegates of the American Medical Association. Members of the Woman's Auxiliary and guests are welcome.

WEDNESDAY, JUNE 14

10 a. m. General Session of the House of Delegates of the Woman's Auxiliary to the American Medical Association. Towne Room (fourteenth floor). Presiding, Mrs. Eben J. Carey, president; minutes, Mrs. David Berg; announcements, Mrs. Roy M. Hutchison; credentials and registration, Mrs. Carlton E. Wertz; resolutions, Mrs. Arthur B. McGlothlan; reports of state presidents.

12:30 p. m. Luncheon in honor of the past presidents of the Woman's Auxiliary to the American Medical Association, Ball Room (lobby floor). Tickets \$2. Guest speaker and guests of honor, Dr. Herman L. Kretschmer, President-Elect, American Medical Association; Dr. James E. Paullin, President, American Medical Association; Dr. Morris Fishbein, Editor of THE JOURNAL and HYGEIA.

2:30 p. m. Afternoon Session: Report of Nominating Committee, Mrs. Roscoe E. Mosiman; election of officers; installation of officers and presentation of president's pin, Mrs. Augustus S. Keck; inaugural address, Mrs. David W. Thomas; minutes, Mrs. David Berg.

5 p. m. Museum of Science and Industry (58th Street and the Lake). Tour of exhibits and buffet supper (tickets can be secured at registration desk).

THURSDAY, JUNE 15

10 a. m. Executive Committee meeting, Committee Room (fourteenth floor); presiding, Mrs. David W. Thomas.

10:30 a. m. Meeting of Board of Directors, committee room (fourteenth floor); presiding, Mrs. David W. Thomas.

Chicago Committee

Mrs. Roy M. HUTCHISON, Chairman

Mrs. ALFRED F. GAREISS	Mrs. M. A. NIX
Mrs. M. RAY HADDON	Mrs. ROLLO K. PACKARD
Mrs. THEODORE JOHNSTON	Mrs. WILLIAM RAIM
Mrs. CLYDE R. LANDIS	Mrs. CALVIN SHORT
Mrs. G. HENRY MUNDT	Mrs. FREDERICK TICE

GOLF TOURNAMENT

The American Medical Golfing Association will hold its twenty-ninth annual tournament at Flossmoor Country Club, Chicago, on Monday, June 12.

TROPHIES AND PRIZES

Thirty-six holes of golf will be played in competition for the eight major trophies and many prizes in the eight events.

Combined Fever and Arsenotherapy in the Intensive Treatment of Early Syphilis (Lantern Demonstration).

EVAN W. THOMAS, New York.

Discussion on papers included in Panel Discussion on Intensive Therapy of Early Syphilis to be opened by HERBERT RATTNER, Chicago.

PANEL DISCUSSION ON PENICILLIN IN THE TREATMENT OF SYPHILIS

UDO J. WILE, U. S. P. H. S., Moderator

Preliminary Results with Penicillin in Experimental Syphilis of Rabbits and in Early Syphilis of Human Beings.

JOHN F. MAHONEY, U. S. P. H. S.

The Preliminary Results of Penicillin Therapy in Early Syphi in Human Beings with Varying Schemes of Treatment.

J. E. MOORE, Baltimore; LIEUTENANT COLONEL THOMAS H. STERNBERG, Medical Corps, Army of the United States; COMMANDER W. H. SCHWARTZ (MC), U.S. N.R.; JOHN F. MAHONEY, U. S. P. H. S., and W. BARRY WOOD JR., St. Louis.

Preliminary Results of Penicillin Therapy in Late Syphilis (Lantern Demonstration).

JOHN H. STOKES, Philadelphia; JOHN F. MAHONEY, U. S. P. H. S.; J. E. MOORE, Baltimore; COMMANDER W. H. SCHWARTZ (MC), U.S.N.R.; LIEUTENANT COLONEL THOMAS H. STERNBERG, Medical Corps, Army of the United States, and W. BARRY WOOD JR., St. Louis.

Discussion on papers included in Panel Discussion on Penicillin in the Treatment of Syphilis to be opened by CAPTAIN WILLIAM LEIFER, Medical Corps, Army of the United States, and LIEUTENANT COMMANDER E. E. BARNSDALE (MC), U.S.N.R.

Friday, June 16—2 p. m.

Election of Officers

Calluses, Cicatrices and Other Stigmas as an Aid in Establishing Personal Identity (Lantern Demonstration).

F. RONCHERE, Providence, R. I.

Discussion to be opened by LOUIS SCHWARTZ, Bethesda, Md., and JOHN G. DOWNING, Boston.

Dermatoses of the Hands: Report of 450 Consecutive Cases (Lantern Demonstration).

C. GUY LANE, E. M. ROCKWOOD, CARL S. SAWYER and IRVIN H. BLANK, Boston.

Discussion to be opened by JOSEPH V. KLAUDER, Philadelphia, and FRANCIS E. SENEAR, Chicago.

Combined Dermal and Epidermal Sensitization.

H. J. TEMPLETON, Oakland, Calif.

Discussion to be opened by J. BEDFORD SHILMIRE, Dallas, Texas, and EDWARD A. OLIVER, Chicago.

Dermatologic Aspects of the Vesicant Gases.

MAJOR MARION I. DAVIS, Medical Corps, Army of the United States.

Discussion to be opened by COMMANDER ROBERT L. GILMAN (MC), U.S.N.R., and LEON GOLDMAN, Cincinnati.

Nodular Vasculitis of the Extremities (Lantern Demonstration).

HAMILTON MONTGOMERY and PAUL A. O'LEARY, Rochester, Minn.

Discussion to be opened by MICHAEL H. EBERT, Chicago, and JOHN H. LAMB, Oklahoma City.

Recurrent, Fixed Erysipelas-like Dermatophytid (Lantern Demonstration).

CAPTAIN MORRIS WAISMAN, Medical Corps, Army of the United States.

Discussion to be opened by JAMES H. MITCHELL, Chicago, and COMMANDER MARION B. SULZBERGER (MC), U.S.N.R.

SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

MEETS IN SOUTH BALLROOM, HOTEL STEVENS

OFFICERS OF SECTION

Chairman—JOSEPH W. MOUNTIN, U. S. P. H. S.

Vice Chairman—E. L. STEBBINS, New York.

Secretary—W. A. SAWYER, Rochester, N. Y.

Executive Committee—CLARENCE D. SELBY, Detroit; HAVEN EMERSON, New York; JOSEPH W. MOUNTIN, U. S. P. H. S.

Wednesday, June 14—9 a. m.

Community Health Education by the Medical Profession (Lantern Demonstration).
BRUNO GEBHARD, Cleveland.

Psychiatric Technics in the Management of Employee Problems.
L. E. HIMLER, Ann Arbor, Mich.

The Physical Fitness of Workers in Industrial Plants.

W. P. JACOBS, Clinton, S. C.

Bagasse Disease of the Lungs (Lantern Demonstration).

W. A. SODEMAN, New Orleans.

Chairman's Address: Relocating of Physicians as Prerequisite to Better Medical Service (Lantern Demonstration).

JOSEPH W. MOUNTIN, U. S. P. H. S.

Thursday, June 15—9 a. m.

PANEL DISCUSSION ON VARIATIONS IN CURRENT INDUSTRIAL MEDICAL SERVICE PLANS

Essayists (Lantern Demonstration):

JOHN J. WITMER, New York.

SIDNEY R. GARFIELD, Oakland, Calif.

M. S. BLOOM, Binghamton, N. Y.

JAMES C. MCCANN, Worcester, Mass.

EDWARD M. JONES, Johnson City, N. Y.

Friday, June 16—9 a. m.

Election of Officers

Public Health Problems of Britain in Wartime.

ARTHUR MASSEY, Coventry, England.

Physical Fitness Program of Victory Corps Project Among High School Students. CARL A. WILZBACH, Cincinnati.

Lesions Simulating Tuberculosis Found on X-Ray Examinations of the General Population.

DAVID M. GOULD, U. S. P. H. S.

Report on "Local Health Units as the Basis of Total National Health Service."

HAVEN EMERSON and R. M. ATWATER, New York.

SECTION ON UROLOGY

MEETS IN TOWER ROOM, LOWER LEVEL, HOTEL STEVENS

OFFICERS OF SECTION

Chairman—COMMANDER GERSHOM J. THOMPSON (MC), U.S.N.R.

Vice Chairman—ARBOR D. MUNGER, Lincoln, Neb.

Secretary—GRAYSON L. CARROLL, St. Louis.

Executive Committee—MEREDITH F. CAMPBELL, New York; VINCENT J. O'CONOR, Chicago; COMMANDER GERSHOM J. THOMPSON (MC), U.S.N.R.

Wednesday, June 14—9 a. m.

Ureterovesical Obstruction (Lantern Demonstration).

J. SYDNEY RITTER and SAMUEL E. KRAMER, New York.

A New Inspection Lens-Sheath as an Aid to Transurethral Resection (Lantern Demonstration).

SAMUEL A. VEST, Charlottesville, Va.

SYMPOSIUM ON THE TREATMENT OF CANCER OF THE PROSTATE GLAND

Effects of Biochemical Therapeutics in Cancer of the Prostate Gland: Further Observation (Lantern Demonstration).

WILLIAM P. HERBST, Washington, D. C.

Breast Changes Due to Diethylstilbestrol During Treatment of Cancer of the Prostate Gland (Lantern Demonstration).

GORDON F. MOORE, CARL A. WATTENBERG and D. K. ROSE, St. Louis.

Clinical Experience with Bilateral Orchiectomy in the Treatment of Cancer of the Prostate Gland (Lantern Demonstration).

JOHN L. EMMETT and L. F. GREENE, Rochester, Minn.

Experiences with Roentgen Ray, Castration and Endocrine Treatment of Cancer of the Prostate Gland (Lantern Demonstration).

JEFFERSON C. PENNINGTON, Nashville, Tenn.

Experiences with Orchiectomy for Carcinoma of the Prostate Gland.

H. C. BUMPUS JR., BEN D. MASSEY and EARL F. NATION, Pasadena, Calif.

Surgical Removal of Cancer of the Prostate Gland: The Radical Operation (Lantern Demonstration).

J. A. C. COLSTON, Baltimore.

Discussion to be opened by WALTER M. KEARNS, Milwaukee; REED M. NESBIT, Ann Arbor, Mich.; A. ELMER BELT, Los Angeles, and HUGH H. YOUNG, Baltimore.

The following physicians will assist in the demonstrations:

William F. Hughes Jr., Baltimore.
Alfred E. Maumenee, Baltimore.
Roy O. Scholz, Baltimore.

6. Electric Burns. Hart Ellis Fisher, Chicago.

Through the medium of photographs, charts and drawings it is intended to show those factors that determine the severity of electric burns. Burns regardless of their origin are due to heat of one nature or another. Burn therapy from electric current does provide some unusual conditions to be present, knowledge of which assures a better prognosis for the patient if properly understood by the physician. Electric burns are generally more severe than those from other sources because of the enormous heat developed from the skin resistance to the passage of the current. Not only do they involve the skin surface, but the destruction may extend deep into the tissues, damaging the nerves, blood vessels, muscles and even the bones. The pathways of the electric current through the body will be shown with an electric neon lighted manikin. A summary of the results obtained in 870 electric burn cases and 402 electrification cases.

Dr. George Howard Irwin, Chicago, will assist in the demonstrations.

7. Prevention of Burns in the Navy. Ernest W. Brown, Captain (MC), U. S. Navy (retired).

The exhibit will emphasize the prevention of flash burns in naval action by means of certain clothing equipment and a protective ointment. A mechanical book will review the development of antflash protective clothing and protective ointment by the Medical Department of the Navy. A manikin will illustrate the battle dress which has been recommended for adoption by the Naval Medical Department and which is in process of procurement for sea trials. The present official antflash clothing equipment will also be shown. In addition, a manikin will rate the asbestos fire fighting suit, designed for the prevention of burns while extinguishing fires.

The following physicians will assist in the demonstrations:

E. L. Lozner, Lieutenant (MC), U.S.N.R.
R. H. Pudenz, Lieutenant (MC), U.S.N.R.

Special Exhibit on Chemotherapy and Infectious Diseases

The Special Exhibit on Chemotherapy and Infectious Diseases is presented under the auspices of a special committee composed of:

Chester S. Keefer, Boston, chairman.
Henry E. Meleney, New York,
Austin E. Smith, Chicago,

and with the assistance of:

Donald G. Anderson, Boston, and Harry Most, New York.

The exhibit shows the status of sulfonamide and penicillin chemotherapy and of tropical diseases. The sulfonamide section presents data on the incidence of toxic reactions, choice of sulfonamide compound, absorption and distribution in the tissues, degree of acidulation in the blood and urine, and solubility of the various acidulated derivatives. The section of tropical diseases is illustrated and designed to offer information on cause, diagnosis, prevention and treatment of these infections.

Competent demonstrators will assist the committee throughout the week, including:

Douglas N. Forman, New York.
J. G. Vaughan, China.
E. M. Dodd, Iran.

W. J. K. Clothier, Africa.
D. C. Gordon, Brazil.
Hyla Watters, China.

Special Exhibit on Rehabilitation

A group of exhibits emphasizing the current importance of rehabilitation and reemployment of the disabled is presented by the Council on Industrial Health and the Council on Physical Therapy of the American Medical Association in cooperation with representatives of the Army, Navy, Veterans Administration and Federal Security Agency. The committee in charge consists of:

Carl M. Peterson, Council on Industrial Health.
Howard A. Carter, Council on Physical Therapy.
C. F. Behrens, Captain (MC), U.S.N., Naval Medical Center, Bethesda, Md.

Donald L. Rose, Major, M. C., A. U. S., Walter Reed Hospital, Washington, D. C.
K. A. Carroll, Hines Hospital, Hines, Ill.
Dean Clark, Office of Vocational Rehabilitation, Federal Security Agency, Washington, D. C.

The following subjects are included and demonstrated by:

Fractures: Kellogg Speed, Chicago.
Amputations: Henry H. Kessler, Mare Island, Calif.
Lame Backs: Frank R. Ober, Boston.
Hard of Hearing: William E. Grove, Milwaukee.
Tuberculosis: Leroy U. Gardner, Saranac Lake, N. Y., and Holland Hudson, New York.
Heart Disease: William D. Stroud, Philadelphia, and Rufus B. Crain, Rochester, N. Y.
Psychiatry: George S. Stevenson, New York, and Thomas A. C. Rennie, New York.
Community Relations: Harold A. Vonachen, Peoria, Ill.
Reemployment: Max R. Burnell, Flint, Mich.

Special demonstrators will be in attendance during the week. Particular attention will be directed at general and special medical procedures, physical and occupational therapy, vocational training and selective placement in suitable occupation.

ARMY AND NAVY EXHIBITS

Three groups of exhibits have been arranged depicting the activities of the Army and Navy in wartime. These are in addition to the individual presentations by Army and Navy medical officers found in other parts of the hall.

BUREAU OF MEDICINE AND SURGERY, Navy Department, Washington, D. C.:

The Medical Department of the United States Navy: Featured in the exhibit of the Medical Department of the Navy is the first showing of a collection of seventy-five original paintings depicting a cross section of current naval medical activities. To gather material for this series, two artists were sent to the South Pacific, and others spent much time sketching continental naval and marine medical activities. Many scenes of medical action in the field and afloat are included. The painters who participated in the program under the direction of the Associated American Artists are Joseph Hirsch, Kerr Eby, Julian Levi, Carlos Andreson, David Stone Martin and Irwin Hoffman. Mr. S. DeWitt Clough, president of the Abbott Laboratories, will present the collection to the Navy as part of its permanent pictorial record of the war. Vice Admiral Ross T. McIntire (MC), U.S.N., Surgeon General of the Navy, will accept the paintings on behalf of the Navy during the course of the meetings. Complementing this attraction is an exhibit of large scale models of a typical advance base hospital on a Pacific island and of the National Naval Medical Center. Medical aspects of submarine activities and those concerned with increasing the survival time of the shipwrecked are also exhibited.

The following naval officers will assist with the demonstrations:

Eugene L. Lozner, Lieutenant, MC-V(S), U.S.N.R., Naval Medical Research Institute, National Naval Medical Center, Bethesda, Md., in charge.
Walter Welham, Lieutenant Commander (MC) U.S.N., Experimental Diving Unit, Navy Yard, Washington, D. C. (Submarine Medicine).
H. R. Evans, Lieutenant (HC), U.S.N., Naval Medical School, National Naval Medical Center, Bethesda, Md.
H. F. A. Long, Ensign (HC), U.S.N., Naval Medical School, National Naval Medical Center, Bethesda, Md.

HOWARD A. RUSK, Lieutenant Colonel, M. C., and DONALD A. COVALT, Major, M. C., U. S. Army Air Forces Headquarters, Washington, D. C.:

Convalescent Training Program in Army Air Forces Hospitals: Exhibit of descriptive material, literature and photographs depicting the program in action at various Army Air Forces hospital. (Motion picture in the Casino, Morrison Hotel.)

ARMY MEDICAL MUSEUM, Army Institute of Pathology, Office of the Surgeon General, U. S. Army, Washington, D. C.:

Pathology and Medical Art in the War: The exhibit includes: (1) Pathologic Material: Pathology of tropical diseases; pathology of liver and kidney in burns, and pathology of sin-

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit will be located on the fourth floor of the Palmer House, occupying the exhibition hall, the foyer to the Grand Ball Room and adjoining corridors.

Emphasis will be placed on war medicine with large exhibits from the Army and the Navy. Special exhibits include fractures, the treatment of burns, chemotherapy and infectious diseases, and rehabilitation. Other features include a group of exhibits on tropical medicine, and lectures and conferences on rheumatic fever and heart disease.

Each section of the Scientific Assembly has sponsored groups of exhibits dealing with the various specialties of medicine, but emphasis is placed on the fact that the Scientific Exhibit is primarily for the physician in general practice.

Motion pictures will be shown in the Casino at the Morrison Hotel on a continuous schedule throughout the week.

Admission to the Scientific Exhibit will be limited to persons wearing Fellowship or other badges of the convention and to guests to whom special cards of admission have been issued. The public will not be admitted to the Scientific Exhibit.

SPECIAL EXHIBITS

The Committee on Scientific Exhibit of the Board of Trustees is sponsoring four special exhibits on fractures, the treatment of burns, chemotherapy and infectious diseases, and rehabilitation. Each exhibit is presented under the auspices of a special exhibit committee. (These exhibits are not open to awards.)

Special Exhibit on Fractures

The special exhibit on fractures is presented for the fourteenth time. The committee in charge is composed of:

Kellogg Speed, Chicago, chairman.
Frank D. Dickson, Kansas City, Mo.
Walter Estell Lee, Philadelphia.

The following subjects will be considered with continuous demonstrations throughout the week:

1. How to Make and Store Plaster of Paris Bandages.
2. Fractures of the Radius—Lower End.
3. Fractures of the Ankle.
4. Emergency Treatment of Fractures for Transportation.

A pamphlet giving the essential features of the exhibit has been prepared for distribution.

A large corps of demonstrators will assist the committee in the presentation of the exhibit, including:

John D. Adams, Boston.	John R. Norcross, Chicago.
C. Glenn Barber, Cleveland.	D. H. O'Donoghue, Oklahoma City.
Gordon W. Batman, Indianapolis.	E. Payne Palmer, Phoenix, Ariz.
Ralph G. Carothers, Cincinnati.	Lynn Rankin, Upper Darby, Pa.
William James Carson, Milwaukee.	Sheppard Remington, Chicago.
Dwight F. Clark, Evanston, Ill.	Robert O. Ritter, Chicago.
George J. Curry, Flint, Mich.	Samuel L. Robbins, Cleveland.
John D. Ellis, Chicago.	L. D. Smith, Milwaukee.
Vernon L. Hart, Minneapolis.	Clarence H. Snyder, Grand Rapids, Mich.
Daniel H. Levinthal, Chicago.	James R. Tillotson, Lima, Ohio.
Walter D. Ludlum Jr., New York.	Edgar C. Turner, Evanston, Ill.
Robert T. McElvenny, Chicago.	H. W. Virgin Jr., Pensacola, Fla.
James W. Martin, Omaha.	Harry Winkler, Charlotte, N. C.
John R. Nilsson, Omaha.	

Special Exhibit on the Treatment of Burns

The special exhibit on the treatment of burns is presented for the first time under the auspices of a committee composed of: Stanley J. Seeger, Texarkana, Texas, chairman.

Ernest W. Brown, Captain (MC), U. S. Navy, Bureau of Medicine and Surgery, Washington, D. C.
Joseph E. Hamilton, Captain (MC), A. U. S., Walter Reed General Hospital, Washington D. C.

The following subjects will be included in the exhibit under the direction of the physicians indicated:

1. Treatment of Burns in the Army. Joseph E. Hamilton, Captain, M. C., A. U. S.

The exhibit consists of three parts: Part one deals with characteristics of war burns and with facts and figures related

to war burns. Under this heading will be considered (a) problems peculiar to war burns; (b) types of war burns and (c) war burn statistics. Part two—a panoramic picture of the treatment of the burn casualty from time of injury in the field to the completion of rehabilitation in the General Hospital. At the extreme left of this panorama will be manikins representing the burned soldier and the company aid man kneeling over him, perhaps in the act of starting plasma. Then by a series of paintings the chain of evacuation will be indicated. It is especially desired to bring out the difficulties met with in the handling of burns in the field. The recommended Army treatment and its place of administration will be outlined in appropriate places. Part three shows the treatment of the burn in the General Hospital. The management of the sloughing burn as it arrives in the hospital, the whirlpool bath, preparation for skin grafting, physical therapy, rehabilitation, etc., will be shown. The role of penicillin in the burn treatment will be given prominent representation.

F. H. Netter, Captain, M. C., A. U. S., will assist in the demonstrations.

2. Local Treatment of Burns. Roy D. McClure, Henry Ford Hospital, Detroit.

The exhibit emphasizes the use of pressure dressings, with a discussion of washing versus nonwashing technics. It shows liver damage resulting from the use of tannic acid, the shortcomings of gentian violet and triple dyes and reasons why the sulfonamides should not be used locally. Results from the use of more than one hundred proprietary remedies are listed. Attention is given to the treatment of alkali and acid burns and burns of the hand.

The following physicians will assist in the demonstrations:

Conrad R. Lam, Detroit.	Sumner L. Koch, Chicago.
Oliver Cope, Boston.	Vinton E. Siler, Cincinnati.
John W. Hirschfeld, Detroit.	Neil Owens, New Orleans.

3. Treatment of Burns; General Care of the Burned Patient. Henry N. Harkins, Johns Hopkins University School of Medicine, Baltimore.

Exhibit demonstrating the chronologic course of the general care of the burned patient from the time of receiving the burn to that of final discharge with complete epithelization; relative importance of general as opposed to local care; relationship between general and local management with discussion of joint action of two in effecting an early cure; special emphasis on burn shock, toxemia, and sepsis in early stages; pulmonary edema and anoxia; plasma and blood transfusion; electrolytes and sodium lactate; final emphasis on hypoproteinemia and secondary anemia in late stages with extensive granulating surfaces.

(Motion picture in the Casino, Morrison Hotel.)

4. Establishment of a Skin Cover Following a Thermal Burn. Earl C. Padgett, University of Kansas School of Medicine, Kansas City, Mo.

The exhibit outlines the properties and classifications of the common types of skin grafts, preliminary preparation of the recipient area, the technic of the removal of skin grafts, their application and proper subsequent dressings.

Dr. John H. Gaskins, Kansas City, will assist in the demonstrations.

(Motion picture in the Casino, Morrison Hotel.)

5. Chemical Burns of the Eyes. Alan C. Woods, Johns Hopkins Hospital, Baltimore.

The general characteristics of chemical burns of the eye are outlined and illustrated by photographs and kodachrome slides of burns by acids, alkalis, mustard gas, lewisite and other gases. New regimens of treatment are presented, including both specific antidotes and general measures for the prevention of complications.

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Walter Welham, Lieutenant Commander (MC) U.S.N., Experimental Diving Unit, Navy Yard, Washington, D. C. (Submarine Medicine).
H. R. Evans, Lieutenant (HC), U.S.N., Naval Medical School, National Naval Medical Center, Bethesda, Md.
H. F. A. Long, Ensign (HC), U.S.N., Naval Medical School, National Naval Medical Center, Bethesda, Md.

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fonamide drug intoxication. (2) Art Material: The Graphic Portfolio on First Aid—a pictorial presentation of how first aid should be given under battle conditions; moulages of war wounds used for training Medical Department enlisted men; neurologic diagnosis charts—a series of original charts used in training neurosurgeons in the Army; examples of the work of the Museum and Medical Arts Service. (3) Material Available for Study: Loan sets of slides and atlases and tropical disease charts. (4) Pictures of the Museum: Pictures and drawings showing the present and proposed Museum building.

The following Army officers will assist with the demonstrations:

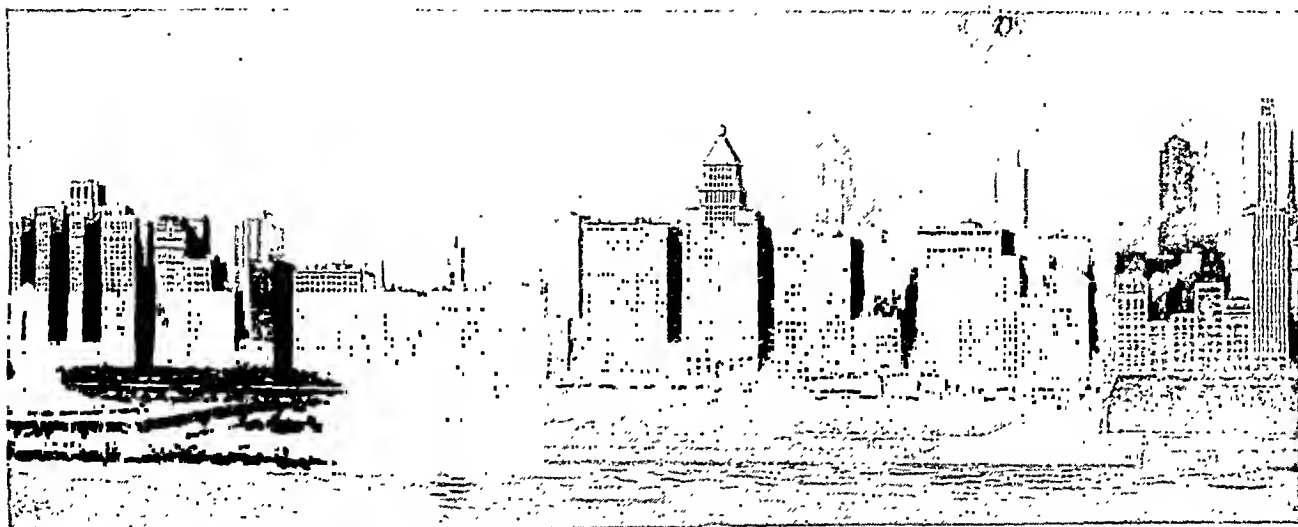
J. E. Ash, Colonel, M. C., U. S. Army.
A. C. Allen, Captain, M. C., A. U. S.
Sophie Spitz, Contract Surgeon.
Ralph P. Creer, Captain, Sn. C., A. U. S.

LECTURES AND CONFERENCES

Lectures and conferences will be held continuously throughout the week in rooms adjoining the exhibition hall.

Rheumatic Fever

The Section on Pediatrics, in cooperation with the Rheumatic Fever Committee of the American Academy of Pediatrics, has arranged informal daily clinical conferences on rheumatic fever.



Grant Park and the Chicago skyline.

Diagnosis and proper management of a case are the most important items in the control of the disease. Physicians will have an opportunity to discuss these and other practical clinical questions with nationally known rheumatic fever experts. This will be an unusual opportunity to exchange views and secure advice about a disease which is rapidly gaining recognition as one warranting intensive professional study.

Among the consultants on duty during the week will be:

Stanley Gibson, Chicago.	M. J. Shapiro, Minneapolis.
Oswald Fenton Hedley, Bethesda, Md.	R. R. Struthers, Montreal, Que.
T. Duckett Jones, Boston.	Leo Taran, Brooklyn.
Robert L. Jackson, Iowa City.	Bernard J. Walsh, Washington.
Alexander T. Martin, New York.	D. C.
	May Wilson, New York

Adjoining the conference room, an exhibit on Rheumatic Fever in Young Hearts is presented by D. B. Armstrong and George M. Wheatley, Metropolitan Life Insurance Company, New York.

Heart Disease

Conferences on heart disease have been arranged by the Section on Practice of Medicine in cooperation with the American Heart Association. Question and answer sessions, aimed to meet the specific problems of the practicing physicians, will be conducted by recognized authorities in cardiovascular diseases each morning at 9:30 and 11 and each afternoon at 2:30 and 4 from Monday noon to Friday noon.

The committee in charge consists of:

Louis N. Katz, Chicago, chairman
G. K. Fenn, Chicago. E. B. Bay, Chicago.

Among the consultants on duty during the week will be:

E. V. Allen, Colonel, M. C., A. U. S.	E. S. Nichol, Miami, Fla.
A. R. Barnes, Rochester, Minn.	R. W. Scott, Cleveland.
W. H. Bunn, Youngstown, Ohio.	F. M. Smith, Iowa City.
J. G. Carr, Chicago	Sidney Strauss, Chicago.
N. C. Gilbert, Chicago.	W. D. Stroud, Philadelphia.
T. R. Harrison, Dallas, Tex.	D. C. Sutton, Chicago.
G. R. Herrmann, Galveston, Tex.	H. E. Ungerleider, New York.
R. L. Levy, New York.	I. S. Wright, Lieutenant Colonel, M. C., A. U. S.
H. M. Marvin, New Haven, Conn.	

WARTIME GRADUATE MEDICAL MEETINGS

The program of clinics, demonstrations and lectures for medical officers of the armed forces and civilian doctors is presented, showing a nationwide extension movement in medical education.

American medicine has mobilized its superb teaching personnel and facilities for the purpose of placing opportunities for further advanced medical instruction in the large hospitals of the armed forces in the United States, free of cost to the government. On request from the commanding officer of a service hospital, courses of instruction in the form of teaching ward rounds, clinical-pathologic conferences, practical demonstrations,

study groups, motion pictures and formal lectures will be conducted by leading authorities of American medicine working in collaboration with specialists already in the services. This program has been initiated by the American Medical Association, American College of Physicians and American College of Surgeons and has the unqualified support of the deans and faculties of fifty-five of the nation's leading medical schools.

The program has the authorization of the Surgeons General of the United States Army, United States Navy and United States Public Health Service

The following exhibit committee is in charge of the booth:

Edward L. Bortz, Captain U. S. N. R., Philadelphia.
LeRoy H. Sloan, Chicago
Newell C. Gilbert, Chicago
Warren H. Cole, Chicago.

TROPICAL MEDICINE

The subject of tropical medicine assumes special importance during the present war emergency. Several exhibits dealing with various details of the problem have been assembled.

EUGENE R. WHITMORE, Georgetown University School of Medicine, and Doctors Hospital, Washington, D. C.:

Parasitology and Tropical Diseases: Exhibit of charts, lantern slides and microscope demonstrations of important animal parasites. (From the Section on Pathology and Physiology.)

WILLIAM HUGH HEADLEE and C. G. CULBERTSON, Indiana University School of Medicine, Indianapolis:

Parasite Infections in Indiana: Exhibit showing that a variety of parasitic infections are present in this temperate region. Maps, charts, gross specimens and microscopic demonstrations dealing with fungous infections (histoplasmosis and madura foot), malaria, amebic dysentery, Rocky Mountain spotted fever, trichinelliasis, hookworm disease and pinworm infection are presented. (From the Section on Pathology and Physiology.)

J. RAMOS E SILVA, Escola de Medicina e Cirurgia, Rio de Janeiro, Brazil:

Brazilian Dermatoses: Exhibit showing photographs of leishmaniasis, yaws, leprosy, brazilian blastomycosis, scabies crustosa and South American pemphigus foliaceus. (From the Section on Dermatology and Syphilology.)

R. H. RIGDON, University of Arkansas School of Medicine, Little Rock, Ark.

Pathologic Lesions Occurring in Human and Experimental Malaria: Exhibit showing the pathologic lesions in monkeys infected with *Plasmodium lophurae*. The relationship of these pathologic changes to those occurring in a child dying of *Plasmodium falciparum* malaria is emphasized. The pathologic changes observed in the experimental studies and those in a human case suggest that a rapidly developing anemia may play a significant role in death as observed in the acute type of malarial infection. The majority of the material included in this exhibit was obtained during the time the exhibitor was a member of the Department of Pathology at the University of Tennessee. (From the Section on Pathology and Physiology.)

AIMEE WILCOX, Malaria Investigations, United States Public Health Service, Memphis, Tenn., and JOSEPH M. LUBITZ, United States Marine Hospital, Chicago:

Malaria, Laboratory Diagnosis: Exhibit outlining the various methods of laboratory diagnosis and stressing those which are of particular value to the general practitioner. Emphasis is placed on the thick and thin smears, their value and interpretation. The proper method of preparing the thick and thin smears is given. Representative parasites of the various species are shown. (From the Section on Pathology and Physiology.)

J. LYELL CLARKE, Des Plaines Valley Mosquito Abatement District, Lyons, Ill.:

Modern Methods of Mosquito Control: Exhibit showing (1) disease carrying mosquitoes; 3,000 live specimens swarming in breeding cabinet, mounted specimens for examination and paraphernalia for handling mosquitoes while testing their disease carrying potentialities; (2) modern mosquito control; pictures of actual field operations showing marsh buggies, water craft and other special machinery for modern speedy application of larvicides and insecticides; (3) biologic control of mosquitoes; use of natural enemies of the mosquito to supplement customary control methods. (From the Section on Preventive and Industrial Medicine and Public Health.)

SECTION EXHIBITS

Groups of exhibits dealing with the various specialties of medicine have been arranged by each of the sixteen sections of the Scientific Assembly.

Section on Practice of Medicine

The representative to the Scientific Exhibit from the Section on Practice of Medicine is Thomas C. Garrett, Philadelphia.

KURT LANGE and LINN J. BOYD, New York Medical College, New York:

Use of Fluorescein to Determine the Adequacy of Circulation: Exhibit showing that fluorescein can be used diagnostically in peripheral vascular diseases to determine the necessity for amputation after sudden occlusive vascular accidents, to establish the lowest safe level of amputation, to determine the status of the peripheral circulation, to estimate the tendency of various leg

ulcers to heal, to predetermine the vascularity of skin flaps in plastic surgery and to ascertain the earliest possible moment for safe division of tubular flaps from their pedicles. It can be employed to determine immediately the viability of a previously strangulated loop of intestine. The exhibit shows the use of the method in simply and accurately determining photoelectrically the capillary permeability, the fact that this permeability is greatly increased in myxedema and returns to normal with thyroid therapy.

H. T. ENGELHARDT and V. J. DERBES, Tulane University School of Medicine, New Orleans:

The Heart in the Asthmatic Child: Exhibit showing (1) the roentgenograms of chests of children who have had bronchial asthma for an average of 4.1 years, the important points in the history and physical examination and the results of the allergic survey and fluoroscopic examination; (2) tables of prediction formulas for the transverse diameter of the heart using height and weight, and prediction formulas for the transverse diameter of the heart using the cardiothoracic ratio; (3) the results of electrocardiograms consisting of standard and chest leads, together with introductory and closing remarks.

GEORGE BURCH and TRAVIS WINSOR, Tulane University School of Medicine, New Orleans:

Clinical Applications of the Phlebomanometer: Exhibit showing the clinical use of the phlebomanometer, a new direct method for measuring venous pressure, and describing the value of venous pressure in the study of heart disease, mediastinal disease, edema and diseases of the veins and other blood vessels by means of charts and diagrams.

WALTER KEMPNER, Duke University School of Medicine, Durham, N. C.:

Treatment of Kidney Disease and Hypertensive Vascular Disease with Rice Diet: Exhibit showing that a rice-fruit-sugar diet has proved to be beneficial to the majority of patients treated for acute or chronic kidney disease or hypertensive vascular disease. Blood pressure, nonprotein nitrogen, cholesterol decreased, and the angle of the electrical axis of the heart increased. Flat, diphasic, inverted T₁ waves became more upright, heart became smaller and retinal hemorrhages, exudates and papilledema disappeared. Summary of these effects and those on urinary chloride and nitrogen excretion, plasma proteins and hemoglobin, as well as the effects on individual patients together with photographs of eyegrounds, electrocardiograms and chest films.

J. LOUIS NEFF and CLARENCE C. LITTLE, American Society for the Control of Cancer, New York:

Cancer Is Curable: Exhibit dramatizing under the motto "The general practitioner usually sees the cancer patient first" the importance of early diagnosis and adequate treatment in determining the cure rate of cancer. It presents a few simple office procedures which, if followed by the family physician, will result in the detection of many cases of cancer which are susceptible of cure.

ELLIOTT P. JOSLIN, HOWARD F. ROOT, PRISCILLA WHITE, C. CABELL BAILEY, ROBERT W. HYDE, Major, M. C., A. U. S., and HARRY BLOTNER, George F. Baker Clinic, New England Deaconess Hospital, Boston:

Diabetes Today: Exhibit presenting new data in the fields of (1) experimental alloxan diabetes, its pathology, physiology and clinical features; (2) statistical studies of childhood diabetes and vascular disease in young diabetic patients; (3) treatment of and prevention of needless deaths in diabetic coma; (4) pregnancy in diabetic women; (5) respiratory metabolism in relation to treatment; (6) The Diabetic Fund; (7) diabetes in men of service age.

LOUIS R. LIMARZI, JEROME T. PAUL and HENRY G. PONCHER, University of Illinois College of Medicine, Chicago:

Sternal Marrow Studies: Exhibit of bone marrow studies, both clinical and experimental, performed during life. The

several methods used in studying bone marrow are illustrated, and the advantage of a concentration method of preparing and studying bone marrow because of its quantitative and qualitative value is demonstrated. A selected group of bone marrow patterns from a study of over 2,450 sternal examinations are illustrated and include the several types of macrocytic, normocytic and microcytic anemias; bizarre erythropoiesis; typical and atypical types of leukemia; thrombocytopenic purpura illustrating normal and pathologic megakaryogenesis, and unusual bone marrows such as histioplasmosis of Darling, malaria, multiple myeloma, chloroleukemia, hypoplastic anemia and infectious mononucleosis. The bone marrow pattern in Banti's symptom complex, the effect of the sulfonamide drugs and the several types of marrow patterns observed during pregnancy are illustrated. Experimental studies include the effect of arsenic on erythropoiesis in normal and pathologic states.

JOHN S. LADUE, University of Minnesota, Minneapolis, and Louisiana State University, New Orleans:

Intravenous Use of Cardiac Glycosides: A Study of the Therapeutic Value, Toxicity and Effect on the Failing Human Heart in Terms of Its Size, Output and Mechanical Efficiency: Exhibit comparing the response of two series of patients with congestive heart failure associated with regular sinus rhythm to oral and intravenous administration of lanatoside C. Daily recordings of venous pressure, circulation time, weight and fluid intake and output are presented. Comparable groups are analyzed. It is shown that cardiac glycosides are almost equally effective in heart failure with auricular fibrillation or regular sinus rhythm. Data on 10 patients show changes in heart size, cardiac output (roentgenkymographic method of Keys and Friedell) and mechanical efficiency two hours after intravenous administration of lanatoside C. Studies on the intravenous digitalization of patients who developed congestive heart failure while taking maintenance doses of digitalis are given. An explanation of the mechanism of compensation of the failing heart in response to the intravenous administration of cardiac glycosides is suggested.

JOHN W. TOWEY, CHESTER S. KOOP, MARION SPRICK and HARRIET HOLLON, Pinecrest Sanatorium and Branch Laboratory, Michigan Department of Health, Powers, Mich.:

Evaluation of Laboratory Procedures in the Diagnosis of Pulmonary Tuberculosis: Exhibit presenting a study of 120 patients with a clinical diagnosis of pulmonary tuberculosis and negative routine slide examinations. An attempt to determine the relative value of laboratory procedures, i. e. the direct smear, concentrate of seven day sputums and gastric aspiration in detecting *Mycobacterium tuberculosis* has been made.

Section on Surgery, General and Abdominal

The representative to the Scientific Exhibit from the Section on Surgery, General and Abdominal, is Grover C. Penberthy, Colonel, M. C., A. U. S.

LYMAN WEEKS CROSSMAN and FREDERICK M. ALLEN, City Hospital, New York:

Refrigeration for Surgical Procedures and Tissue Conservation: Exhibit showing examples and results of refrigeration for various operative procedures, together with advantages for embolism, burns, frostbite and other treatments, including influence on shock. (Motion picture in the Casino, Morrison Hotel.)

OTTO F. KAMPMERER and A. R. COOPER, University of Illinois College of Medicine, Chicago:

Frontal Sections of the Human Head and Neck: Exhibit of a series of ten sections of the young adult human head and neck, cut symmetrically in the frontal plane. An outline figure, on which each structure is indicated and labeled, accompanies each specimen.

ARTHUR E. HERTZLER, Halstead Hospital, Halstead, Kan.:

Wound Healing: Exhibit showing results and conclusions of ten years' research on wound healing, chiefly on peritoneum in

dog and man. First and second intention healing is defined and illustrated, and temporary and permanent adhesion formation shown by a series of models made from actual cases.

ARNOLD S. JACKSON, JAMES A. JACKSON and A. M. SCHWITZ, Jackson Clinic, Madison, Wis.:

Diseases of the Gynecologic System: Exhibit illustrating gynecologic anatomy, diseases of the uterus, ovaries and fallopian tubes; a case of cesarean section followed by abdominal hysterectomy and fibroma of ovary with hydrothorax.

DAVID WOOLFOLK BARROW, Lieutenant Colonel, M. C., A. U. S., Lexington, Ky., and HARMON T. RHOADS JR., Captain, M. C., A. U. S., New York.

Blast Injury: Exhibit presenting a study of 200 persons subject to blast injury, of whom 17 were killed. Blast injury was associated with characteristic clinical findings, which consisted of decreased psychomotor activity, lethargy, hypotension, bradycardia and slow respiration as well as damage to eyes and ears. Therapeutic measures are discussed.

J. ROSS VEAL and HUGH H. HUSSEY, Georgetown University School of Medicine, Washington, D. C.:

Surgery of Thrombosis of Peripheral Veins: Exhibit showing the classification, pathology and etiology of various types of peripheral venous thromboses; differential diagnosis and method of treatment of each type are included with results (immediate and late) technic and value of venography.

LEON J. ARIES, Northwestern University Medical School, Chicago:

Experiments in Bone Growth: Exhibit showing experimental studies of bone growth and grafts with effect of vital staining with alizarin dye. The pattern of bone growth in long bones is demonstrated. The effect of alizarin on onlay and inlay bone grafts. Studies in measurement of bone growth by the vital staining with alizarin in rats.

CHARLES S. WHITE, JACOB J. WEINSTEIN and J. LLOYD COLLINS, George Washington Medical School and Gallinger Hospital, Washington, D. C.:

Protein Metabolism and the Use of Protein Digest in Surgery; Preparation of Plasma by Sedimentation by a New Method: Exhibit showing the incidence of hypoproteinemia, its mechanism and associated clinical manifestation in relation to surgical cases, together with the effect of protein digest intravenously, orally and subcutaneously on blood protein levels and nitrogen metabolism.

CONRAD R. LAM and BROCK E. BRUSH, Henry Ford Hospital, Detroit:

Bronchiectasis: Diagnosis and Surgical Treatment: Exhibit outlining the usual clinical course of bronchiectasis and the important points in diagnosis. Visualization of the bronchi is stressed, and informative films are presented. A model of the bronchial tree is used to show the various shadows obtained when the subject is in different positions during roentgenography. The efficacy of surgical treatment (lobectomy) is demonstrated. Important steps in the modern operation of lobectomy by the individual ligation technic are shown.

KEITH S. GRIMSON, Duke University, Durham, N. C.:

Paravertebral Sympathectomy for Hypertension: Exhibit presenting four correlated groups. The first represents the understanding of the etiologic factors present in hypertension and the deductions that have led the author to perform complete paravertebral sympathectomy rather than splanchnicectomy on most patients and that have offered encouragement to surgical treatment. The second represents an illustration of the surgical procedure together with illustration-demonstration of some limitation by nerve regeneration and also an anatomic dissection placed in a lighted cabinet in the center of the exhibit floor. The third represents the operative mortality and the effect of the operation on blood pressure on all patients. The fourth

group represents a control series of thoracolumbar splanchnicectomies. The conclusion is that paravertebral sympathectomy proposed because of extensive physiologic studies is more effective than the conventional splanchnicectomy.

Section on Obstetrics and Gynecology

The representative to the Scientific Exhibit from the Section on Obstetrics and Gynecology is Frederick H. Falls, Chicago.

FREDERICK H. FALLS and CHARLOTTE S. HOLT, University of Illinois College of Medicine and State Department of Public Health, Chicago:

Obstetric Hemorrhages; Placenta Previa, Premature Detachment, Postpartum and Miscellaneous: Exhibit dealing with "obstetric hemorrhages" in all phases, stressing principally placenta previa, premature detachment, abortion, postpartum hemorrhages, ectopic pregnancy and miscellaneous hemorrhages. Each main subject is considered from the standpoint of etiology, pathology, diagnosis and treatment. Standard procedures for combating hemorrhage are depicted.

GEORGE N. PAPANICOLAOU, HERBERT F. TRAUT and ANDREW A. MARCHETTI, Cornell University Medical College, New York, and JOE V. MEIGS, MAURICE FREMONT-SMITH, RUTH M. GRAHAM, ISRAEL KAPNICK and LOIS T. JANZEN, Harvard Medical School, Massachusetts General Hospital, Boston:

The Vaginal Smear in the Diagnosis of Cancer: Exhibit demonstrating the value of the study of vaginal smears in the diagnosis of cancer of the cervix and body of the uterus and demonstrations of how the smears are made and stained.

A. R. ABARBANEL, George Washington University School of Medicine, Washington, D. C., and HOWARD F. KANE, Commander (MC), U.S.N.R., Washington, D. C.:

Pharmacodynamic Studies of the Human Gravid Uterus by Means of External Hystero-graphy: Patterns of uterine motility have been studied under normal and experimental conditions. The following points are emphasized: 1. Responses to various oxytocics, including posterior pituitary injection, pitressin, pitocin, quinine and ergonovine. 2. The effect of magnesium ion on these responses, especially its immediate relaxing effect on uterine tetany. The clinical implications of this phenomenon are especially stressed. 3. The effect of calcium on these responses, in particular its sensitization (1-2 action) of the uterus to subsequent oxytocics. 4. Pathway and rate of conduction of the contraction wave, demonstrating its peristalsis-like character.

HOWARD C. MOLOY, Columbia University College of Physicians and Surgeons and Sloane Hospital for Women, New York:

Pelvic Model Manikins Reproducing the Caldwell-Moloy Classification of Female Pelves: Exhibit showing representative examples of fourteen pelvic types selected from T. Wingate Todd's well known skeletal collection in the Department of Anatomy, Western Reserve University, a typical male pelvis and a typical asymmetrical pelvis. Durable plastic replicas of these sixteen pelves have been made and mounted on a metal base by a U shaped support, which permits a study of the morphology of each pelvis and, by adjustment, the model can be converted into a manikin. As a manikin the influence of pelvic shape on head position, manual and forceps mechanism can be demonstrated efficiently.

CATHARINE MACFARLANE, MARGARET C. STURGIS and FAITH S. FETTERMAN, Woman's Medical College of Pennsylvania, Philadelphia:

Periodic Pelvic Examinations in the Control of Cancer of the Uterus: Exhibit summarizing the pelvic findings in 1,000 theoretically well women 30-80 years of age examined twice a year for five years; models of the uterine cervix in health and disease viewed through vaginal speculums; models illustrating the diseased cervix before and after treatment.

BENJAMIN S. KLINE, Mount Sinai Hospital, Cleveland:

Salmon, Geist, Salmon, Frank Six Hour Rat Test for Pregnancy: Exhibit showing technic of test with results in over 1,000 animals; chart of cases checked by Friedman test and by operation; photographs of animals and of positive and negative reactions; outline of method for obtaining rats 47 to 55 Gm. by the 22d to 25th day which are preferable to rats 34-45 Gm. (22-25 days old). This test was found reliable, much simpler in performance than the Friedman test, and because it requires but six hours it is more valuable for hospital practice.

MALCOLM B. DOCKERTY, Mayo Clinic, Rochester, Minn.:

Certain Types of Uterine Neoplasms: Exhibit demonstrating, by means of colored wax models of selected specimens, certain types of uterine neoplasms. Each specimen is accompanied by a brief description of its outstanding characteristics and a photomicrograph of its histologic appearance.

RICHARD TORPIN, University of Georgia School of Medicine, Augusta, Ga.:

Bisected Human Pregnant Uteri: Exhibit of drawings all made exactly to scale with exact dimensions. They range from 5 millimeter long fetus to full term, including one placenta previa centralis nearly full term, one full term ovarian pregnancy and one 4 months interstitial pregnancy.

Section on Ophthalmology

The section exhibit committee of the Section on Ophthalmology consists of Georgiana D. Theobald, Oak Park, Ill., chairman; Derrick Vail, Lieutenant Colonel, M. C., A. U. S., and A. B. Reese, New York.

J. Q. GRIFFITH JR., and WILFRED E. FRY, University of Pennsylvania, Philadelphia:

Papilledema; Mechanism and Clinical Applications: Exhibit illustrating a series of experiments in which papilledema was produced in laboratory animals under carefully controlled conditions. These experiments support the following hypothesis: Papilledema results when pressure is exerted on the central vein of the retina where it traverses the perineural optic space. Under normal conditions the perineural optic space is continuous with the subarachnoid space, and any condition causing increased pressure in the cerebrospinal fluid will cause papilledema. However, if for any reason the perineural optic space is blocked and is not continuous with the subarachnoid space, increased pressure in the cerebrospinal fluid will not cause papilledema. Various pathologic states are reviewed, including brain tumor, brain abscess, subarachnoid hemorrhage, meningitis of bacterial origin, encephalitis, hydrocephalus, sinus thrombosis, intracranial aneurysm, cerebral trauma, congenital malformations and hypertension.

CHARLES WEISS and FRANK H. RODIN, Mount Zion Hospital, San Francisco:

Laboratory Aids in the Diagnosis of Infections of the Eye, with Special Reference to Those Occurring in Tropical and Subtropical Countries: Exhibit showing photographs and colored plates of diseases of the eye together with the corresponding bacteria, fungi, parasites and inclusion bodies. Laboratory methods are presented which are of aid in the diagnosis of infections of the eye, and charts and maps which show their geographic distribution throughout the tropical and subtropical world are included.

Section on Laryngology, Otology and Rhinology

The representative to the Scientific Exhibit from the Section on Laryngology, Otology and Rhinology is Paul H. Holinger, Chicago.

J. R. LINDSAY, The University of Chicago, Chicago:

Ménière's Disease: Exhibit demonstrating the pathologic changes in the inner ear and characteristic auditory findings in this disease.

H. B. PERLMAN, The University of Chicago, Chicago:

Eye Movements: Exhibit demonstrating the electrical potentials (retinocorneal) of the various types of normal and pathologic eye movements.

O. E. VAN ALYEA, University of Illinois College of Medicine, Chicago:

Treatment of Acute Infections of the Nose and Sinuses: Exhibit showing that treatment of acute nasal and sinus infections is undergoing constant change at the present time and improved methods are being adopted from time to time to conform to ever increasing knowledge of nasal physiology and the histopathology of respiratory mucosa. Modern medical and surgical procedures are described and the basis for these procedures is presented.

A. C. HILDING, Duluth, Minn.:

Production of Negative Pressure in Respiratory Tract by Ciliary Action—Probable Relation to Postoperative Atelectasis: Exhibit demonstrating negative pressure produced experimentally in the lower air passages and sinuses by normal ciliary action in the presence of abnormally great quantities of mucus. Normal ciliary action seems to be one important factor in the production and maintenance of postoperative atelectasis.

CHEVALIER L. JACKSON, JOHN FRANKLIN HUBER and CHARLES M. NORRIS, Temple University Hospital, Philadelphia:

Applied Anatomy of the Branchi and Lungs: Exhibit showing clinical demonstration by means of roentgenograms as well as bronchoscopic views of the practical application of anatomic knowledge to the interpretation of both roentgen and bronchoscopic findings. A simple nomenclature quickly learned and easily remembered is used.

A. R. HOLLENDER and HANS BRUNNER, University of Illinois College of Medicine, Chicago, and PAUL B. SZANTO, Chicago and Kankakee State Hospitals:

The Nasopharynx—Anatomic, Pathologic and Clinical Aspects: Exhibit showing the anatomy with diagrams, drawings and actual specimens; the pathology with gross specimens and photomicrographs, and the clinical aspects with drawings of diagnostic and therapeutic technic.

Section on Pediatrics

The representative to the Scientific Exhibit from the Section on Pediatrics is Sterling H. Ashmun, Dayton, Ohio.

I. P. BRONSTEIN, University of Illinois College of Medicine, Chicago:

Pediatric Endocrinopathies: Exhibit of clinical observations demonstrating disturbances of weight, stature and the sexual apparatus encountered in pediatric practice. In obesity emphasis is placed on the correction taking place in the pubertal period without the aid of glandular products. In the dwarfish group interesting case histories are presented; the effect of growth hormone is noted. In the sexual group the part played by the hypothalamic-hypophyseal apparatus in precocity is stressed.

ETHEL C. DUNHAM, Children's Bureau, United States Department of Labor, Washington, D. C.:

Hospital Nursery Unit for Newborn Infants: Exhibit of a model, developed by the Children's Bureau, United States Department of Labor, and the Hospital Facilities Section, United States Public Health Service, showing a complete hospital nursery unit for newborn infants, including a nursery for full-term infants, nursery for premature infants, nursery for infants suspected of being ill, a nurses' station, and nurses' charting and work space.

I. J. WOLF, Barnert Memorial Hospital; Paterson Board of Health, Paterson, N. J.:

Prevention and Treatment of Rickets with Single Massive Doses of Vitamin D: Exhibit showing (1) the use of single massive doses of vitamin D (600,000 units) for the treatment of

active rickets; (2) the use of single massive doses of vitamin D for the prevention of rickets; (3) the safety of single massive doses of vitamin D in the prevention and treatment of rickets in infants.

D. B. ARMSTRONG and GEORGE M. WHEATLEY, Metropolitan Life Insurance Company, New York:

Rheumatic Fever in Young Hearts: Exhibit of a series of charts showing the prevalence and trends of rheumatic fever at the younger ages; statistical data on factors in the etiology and spread of the disease; data on the prognosis of the disease based on the continuous follow-up of nearly 3,000 children after an attack of rheumatic fever.

Section on Experimental Medicine and Therapeutics

The representative to the Scientific Exhibit from the Section on Experimental Medicine and Therapeutics is Robert W. Wilkins, Boston.

HARRY GOLD and McKEEN CATTELL, Cornell University Medical College, New York:

Recent Developments in Digitalis: Exhibit illustrating various aspects of recent developments in our knowledge of digitalis materials in animals and man. It deals with such matters as the mechanism of digitalis action, the various methods of assay including the cat and man, dosage, absorption and comparison of various glycosides.

WILLIAM H. FELDMAN, H. CORWIN HINSHAW and FRANK C. MANN, Mayo Foundation, Rochester, Minn.:

Chemotherapy of Tuberculosis: Exhibit showing the progress achieved in the chemotherapeutic attack on tuberculosis during the past five years. Subject matter is divided essentially into three parts: (a) the chemistry of noneffective and effective compounds assayed in vivo; (b) significant evidence of the efficacy of certain compounds in exerting a favorable influence on the expected course of inoculation tuberculosis in the highly susceptible guinea pig; (c) a consideration of the present status and future possibilities of chemotherapy in clinical tuberculosis.

KARL A. MEYER, DONALD D. KOZOLL, BRUNO W. VOLK, FREDERICK STEIGMANN and HANS POPPER, Hektoen Institute for Medical Research of the Cook County Hospital and Cook County Graduate School of Medicine, Chicago:

Plasma Substitutes in the Treatment of Shock: Exhibit showing the treatment of shock and the part which the different plasma substitutes may play in it, regarding the raising of the circulating plasma volume and regarding protein nutrition in the postshock state. The advantages and disadvantages of the administration of gelatin and pectin solutions are demonstrated, based on clinical studies in patients in shock and not in shock, on microscopic studies of human organs and on animal experiments. The results following the administration of plasma substitutes are compared with those after plasma and crystalloid solutions. The results obtained from the parenteral administration of protein preparations as nutrients are presented.

RALPH M. TANDOWSKY, College of Medical Evangelists, Los Angeles:

Treatment of Congestive Heart Failure with Special Reference to Lanatoside C: Exhibit showing the effect of lanatoside C, a chemically pure digitalis glycoside, in normal subjects and in patients with congestive heart failure; statistical charts showing the advantages of the chemically pure digitalis glycoside over ordinary digitalis, especially in connection with rapidity of action, tolerance and changes in the RS-T and T waves. A discussion of the chemistry and pharmacology of lanatoside C is included.

HENRY TURKEL and FRANK H. BETHELL, University of Michigan, Simpson Memorial Institute, Ann Arbor, Mich.:

Biopsy of Bone Marrow and Intramedullary Administration of Fluids Performed by a New Instrument: Exhibit showing a new instrument, consisting of two needles with stylets, an

outer guiding needle of 14 gage and an inner trephine needle of 17 gage. By means of this device a small plug of bone marrow may be obtained with technical ease and a minimum of discomfort to the patient. The material is suitable for fixation and sectioning or imprints may be made with it. If desired, aspiration of marrow may be performed immediately after the removal of the trephine specimen. For intramedullary administration of blood and other fluids the outer needle is pushed into the opening in the bone which remains when the inner or cutting needle is removed carrying with it the plug of bone and marrow. Thus there is no obstruction to the free flow of the infusion fluid.

DAVID LEHR, New York Medical College, New York:

Experimental and Clinical Studies with Three Sulfonamides: Exhibit showing (1) comparative absorption, excretion and toxicity of sulfacetimide, sulfadiazine and sulfanilamide after oral and intraperitoneal administration, with special consideration of the relationship of the sulfonamide levels in blood and urine (a study in men and animals); (2) prevention, sequelae and therapy of experimental renal obstruction from sulfadiazine. An evaluation of clinical measures (forcing of fluids and alkalinization) and of some new therapeutic approaches carried out under the standard conditions of the animal experiment.

S. G. TAYLOR III, University of Illinois College of Medicine, HOWARD L. ALT, Northwestern University Medical School, and SIDNEY O. LEVINSON, Samuel Deutsch Serum Center of Michael Reese Hospital, Chicago:

Red Cell Suspension Transfusions: Viscose Tubing for Their Administration: Exhibit demonstrating apparatus and technic for the giving of red cell transfusions, including the use of viscose tubing; charts and graphs showing results of red cell transfusions in a large series of cases; advantages of red cell over whole blood transfusions will be outlined.

CYRIL M. MACBRYDE, HAROLD K. ROBERTS and ROBERT REISS, Washington University School of Medicine, St. Louis:

Modified Protamine Zinc Insulin: Exhibit illustrating comparative action of various types of modified insulin, including standard protamine insulin, histone insulin, globin insulin, clear protamine zinc insulin and a special modified protamine zinc insulin with which the results are superior to those obtained with any of the other modifications. Reports of case studies on individual diabetic patients and summaries of results on groups of patients.

ROBERT H. WILLIAMS, Harvard Medical School and Boston City Hospital, Boston:

Thiouracil in Thyrotoxicosis: Exhibit illustrating the response to thiouracil treatment in the basal metabolic rate, protein-bound iodine, and in the clinical course of thyrotoxicosis. The rate of its absorption from the gastrointestinal tract, distribution throughout the body, its fate in the body, and the rate of excretion in the urine and stools is demonstrated. The site of action of thiouracil is shown. The course of patients receiving potassium iodide, before or during thiouracil therapy, is illustrated. Factors affecting the storage of thiouracil in the thyroid; the effects of thiouracil on the thyroxine content of the thyroid, and its effects on the histology of the glands are brought out. Great stress will be placed on the use of thiouracil in the medical and surgical treatment of thyrotoxicosis as concerns not only the effectiveness of the drug but also the complications arising from its use.

Section on Pathology and Physiology

The representative to the Scientific Exhibit from the Section on Pathology and Physiology is Frank W. Konzelmann, Philadelphia. In addition to the exhibits listed here, several other exhibits from this section will be found in the Tropical Medicine Group.

PAUL N. HARRIS and K. K. CHEN, the Lilly Research Laboratories, Indianapolis:

Experimental Liver Injury: Exhibit illustrating hepatic injury produced by (1) administration of 14 pure alkaloids derived

from plants of the genera Senecio, Heliotropium and Crotalaria and by feeding seeds of Amsinkia horizontalis; ingestion of these plants and seeds is known to produce hepatic cirrhosis in live stock; (2) *p*-dimethylaminoazobenzene, or "butter yellow"; the effect of diet on development of cancer and cirrhosis is also shown; (3) a miscellaneous group of substances including tannic acid, carbon tetrachloride, diethylene glycol and high cystine diet; these are included for comparison with other lesions.

A. J. NEDZEL, University of Illinois College of Medicine, Chicago:

Initial Changes in Heart Valves (Human and Dogs): Photomicrographs present some endothelial changes of the mitral valves in persons who died suddenly (violent death) in presumably healthy state and mostly of the young and middle age persons. The findings are compared with the material collected previously in dogs in which the development of the endocarditis has been studied. An additional group of photographs presents some macroscopic changes in dogs' heart valves (mitral and tricuspidal) which were found immediately after putting the animals to death. Some of these dogs were subjected to various manipulations shortly before they were killed. An attempt is made to show that the initial changes in the heart valves, which predispose to the localization of floating in blood stream bacteria and eventually may lead to the development of bacterial endocarditis, are often present in presumably normal persons.

HELEN INGLEBY, Woman's Medical College of Pennsylvania, Philadelphia:

Normal and Pathologic Growth in the Breast: Exhibit showing the growth of the breast at puberty, the menstrual cycle, the relation of normal growth to cystic disease of the breast and the relation of cystic disease to carcinoma.

F. P. McNAMARA, Finley and Mercy Hospitals, Dubuque, Iowa:

Necropsy Records: Their Use in Informal Postgraduate Education: Exhibit showing over 900 necropsy records and photographs of some of the more interesting specimens. It indicates how clinical records and necropsy reports can be utilized in clinicopathologic conferences as a method of informal postgraduate education. Reprints will be exhibited to show the scope and character of this work in a 100 bed hospital.

ARMAND J. QUICK, Marquette University School of Medicine, Milwaukee:

Determination of Prothrombin: Exhibit showing (1) the newer information concerning the constitution of prothrombin, an explanation of the chemistry of its determination in the blood and an outline of its variations in different clinical conditions including dicumarol hypoprothrombinemia, (2) a practical demonstration of the "prothrombin time test" on human plasma and (3) a display of the apparatus needed for the performance of the test and for the preparation of the required reagents.

OTAKAR J. POLLAK, Taunton State Hospital, Taunton, Mass.:

A Rapid Trichrome Stain: Exhibit showing the use of a simple trichrome stain. This mixture, applied for three minutes as counterstain to hematoxylin, gives excellent differentiation of tissues and is especially suitable as a connective tissue, fibrin and elastica stain.

K. G. KHOROZIAN, Pineville, W. Va.:

Microkaryocytes, the Fourth Corpuscular Elements of the Blood and Tissues: Exhibit presenting: 1. A demonstration of the cells in tissues, with newer concept about the internal structures of cells; demonstration of the cells in human erythrocytes. 2. Characteristics of the cells; brownian movement, diapedesis, infiltration capacity. 3. Functions of the cells; union and dissemination of arsenic by the cells into intercellular and intracellular structures of different organs. Microscopic slide method of demonstration of the anastomosis of hepatic arterial and portal venous systems around individual hepatic cells; union and dissemination of intramuscularly given bismuth by the cells, especially at the site of injection and in the hepatic tissue;

method of excretion of arsenic and bismuth into intestinal canal and reabsorption by microkaryocytes into portal system and carriage into individual hepatic cell; physiologic basis of arsenic and bismuth jaundice. 4. Clinical application of the experimental observation that microkaryocytes are the disseminators of therapeutically given bismuth; human biopsy; demonstration of therapeutically given bismuth in human syphilitic placenta.

JULIUS S. WEINGART, Iowa Lutheran Hospital, Des Moines, Iowa:

Stereoscopic Photography of Pathologic Specimens: Exhibit demonstrating the proper method of taking stereoscopic photographs and the superiority of these for recording the anatomic structure and tissue texture of pathologic specimens. Many of the photographs are in color as well, which gives a very lifelike representation. The value of such records in the teaching of pathology is stressed by the exhibit.

S. E. GOULD, Eloise Hospital, Eloise, Mich.:

Diagnostic Methods in Trichinosis: Exhibit illustrating the various laboratory diagnostic methods in trichinosis. The projection of live trichina larvae on the screen by means of a microvivarium will be demonstrated.

Section on Nervous and Mental Diseases

The representative to the Scientific Exhibit from the Section on Nervous and Mental Diseases is F. P. Moersch, Rochester, Minn.

NORMAN R. SHULACK, Major, M. C., A. U. S., Station Hospital, Fort Benning, Georgia:

Treatment Methods in a Neuropsychiatric Section of an Army Station Hospital: Exhibit illustrating modern methods used to receive, rehabilitate, cathartize, return to duty or otherwise dispose of acute neuropsychiatric casualties by means of group and individual psychotherapy, occupational, recreational, educational and religious programs, chemical methods such as sedation, subnarcosis and induced convulsions, and by other methods, including physical therapy, hydrotherapy and parenteral feedings.

FRANCIS C. GRANT, Neurosurgical Service Hospital and Graduate Hospital, University of Pennsylvania, Philadelphia:

Lesions of the Brain and Spinal Cord: Exhibit showing all varieties of neurosurgical lesions; examples of tumors of the brain and spinal cord and the neurosurgical technic necessary to remove such lesions; examples of the results of cranial trauma, compound fractures of the skull, acute and chronic hemorrhage, brain abscess and craniocerebral scar.

R. W. WAGGONER and K. LOWENBERG-SCHARENBERG, University Hospital, Ann Arbor, Mich.:

Pathology of Nervous and Mental Disorders: Exhibit consists of gross specimens and mounted coronal and horizontal sections of the brain (Weigert & Nissl preparations). Photographs of the brain showing various types of disorders and of genetic charts. Disorders of particular interest to practitioners, such as brain tumors, are illustrated.

E. S. GURDJIAN and JOHN E. WEBSTER, Major, M. C., A. U. S., Wayne University College of Medicine and Grace Hospital, Detroit:

Traumatic Intracranial Hemorrhage: Exhibit presenting a pictorial discussion of epidural hemorrhage, acute and chronic subdural hemorrhage, massive intracranial hemorrhage and subdural collection of spinal fluid. Pathology, diagnostic criteria and operative technic are shown. (Motion picture in the Casino, Morrison Hotel.)

Section on Dermatology and Syphilology

The representative to the Scientific Exhibit from the Section on Dermatology and Syphilology is Hamilton Montgomery, Rochester, Minn. In addition to the exhibit listed here, other exhibits from this section will be found in the Tropical Medicine Group.

HERMAN N. BUNDESEN, Chicago Health Department, Chicago:

Chicago Venereal Disease Control Program: Exhibit showing the organizational setup, functions, activities and results of the Chicago Venereal Disease Control Program. A coordination of all activities as: educational facilities, case finding, case holding and treatment is presented in relation to effective venereal disease control methods. The relationship of all phases of venereal disease control to intensive treatment and operation of the Chicago Intensive Treatment Center is included. Slides illustrating types and methods of intensive treatment at the Chicago Intensive Treatment Center are presented.

EVAN W. THOMAS, GERTRUDE WEXLER and BERNHARD DATTNER, Bellevue Hospital-New York University College of Medicine, New York:

Rapid Treatment of Early and Central Nervous System Syphilis: Exhibit describing the treatment and summarizing the reactions and results of treatment of about 2,000 cases of early syphilis and about 400 cases of active central nervous system syphilis. The prevention of late symptomatic syphilis will be stressed.

LEON GOLDMAN, JOSEPH B. HOMAN and NANCY BURNHAM, University of Cincinnati College of Medicine, Cincinnati:

Devices for Protection of the Skin: Exhibit illustrating many of the common devices for complete and partial protection of the skin, with emphasis on protection of the hands. Schematic representations of some of the chemical detector materials now available, and the relationship of chemical detectors to protection of the skin.

EDWARD A. OLIVER, Secretary, Committee on Occupational Dermatoses, Section on Dermatology and Syphilology, American Medical Association, Chicago:

Industrial Dermatoses, with Special Reference to Those Occurring in War Industries: Exhibit of photographs and charts illustrating the commoner industrial dermatoses.

LOUIS SCHWARTZ and NORMAN R. GOLDSMITH, United States Public Health Service, Bethesda, Md.:

Occupational Dermatitis in the War Industries: Exhibit showing how the war effort has resulted in an increase in the incidence and variety of industrial dermatoses. Certain problems are common to the manufacture of many articles, while others are specific to a particular industry or process. The principal dermatologic hazards with preventive measures are presented. Among the subjects included are dermatitis from cutting oils, solvents, munitions, explosives, chemical warfare agents, plastics, and special problems in shipbuilding, airplane manufacture and miscellaneous war industries.

C. W. EMMONS, National Institute of Health, United States Public Health Service, Bethesda, Md.:

Fungi of Dermatologic Importance: Exhibit presenting new and poorly known data concerning dermatophytes and the fungi of chromoblastomycosis, Madura foot and coccidioidomycosis.

Section on Preventive and Industrial Medicine and Public Health

The representative to the Scientific Exhibit from the Section on Preventive and Industrial Medicine and Public Health is Paul A. Davis, Akron, Ohio. In addition to the exhibits listed here, other exhibits from this section will be found in the Tropical Medicine Group.

O. A. SANDER and N. E. ENZER, Milwaukee:

Pulmonary Siderosis of Welders: Exhibit showing that a small percentage of electric arc welders, limited to those doing rather confined work, after eight to ten years may develop inert iron pigment deposits in the lymphatics of the lungs which can be visualized on chest roentgenograms as small discrete shadows somewhat resembling nodular silicosis. The term "siderosis" for

this iron pigmentation, therefore, excludes the concept of fibrous tissue proliferation. Moreover, it does not cause functional impairment of the lungs or increased susceptibility to tuberculosis or other infections. It can be prevented even with the most confined welding by means of adequate ventilation.

H. S. VAN ORDSTRAND and CHARLES ROBERT HUGHES, Cleveland Clinic, Cleveland; J. M. DENARDI, Lorain, Ohio, and MORRIS G. CARMODY, Painesville, Ohio:

Industrial Diseases in the Beryllium Industry: Exhibit demonstrating clinical and pathologic findings in workers processing beryllium from the raw ore. The demonstration shows respiratory, dermatologic and ocular manifestations. Chemical pneumonitis is emphasized, including material from 4 cases studied post mortem.

J. G. TOWNSEND, Division of Industrial Hygiene, United States Public Health Service, Bethesda, Md.:

Industrial Hygiene Services in War Industries: Exhibit presenting field work of the Division of Industrial Hygiene, United States Public Health Service, illustrating the features of a survey of the health program in a plant making explosives. The functions of medical, engineering and chemical personnel are shown. Cooperative relationships of the United States Public Health Service, the states and other industrial agencies are represented by diagram.

R. R. SAYERS, Bureau of Mines, United States Department of the Interior, Washington, D. C., and H. H. SCHRENK, Bureau of Mines, Pittsburgh:

Hygiene of Dust in Air: Exhibit showing the amount of dust that can be safely breathed per day and per year over a prolonged period of time; photographs and diagrams illustrating the formation, dissemination, properties, determination and control of unhygienic particulate matter (dust, fumes, mists and fog) in air.

E. G. MEITER, Employers Mutual Liability Insurance Company of Wisconsin, Milwaukee:

Occupational Disease Hazards—Detection and Control: Exhibit featuring both medical and engineering methods for the control of health and safety of industrial workers, particularly those engaged in war industries. Medical control measures include representative physical examination forms covering the more common occupational diseases. Engineering control is illustrated by instruments and devices used for detecting and measuring the toxic agents in air. The equipment will be in operation showing the sampling procedure. Representative respiratory protective devices together with information regarding their respective field of use are included.

JAMES MALLORY CARLISLE and WILLIAM J. REILLY, Merck & Co., Inc., Rahway, N. J., and HARRISON S. MARTLAND, Newark, N. J.:

Industrial, Civil and War Injuries: Exhibit showing (1) casualties at Pearl Harbor, Bataan and Corregidor and the methods and conditions under which they were treated; (2) types of civil traumatic injuries which may also occur in military life, showing condition immediately following accident, progress of treatment and result; (3) industrial acid and alkaline chemical burns of the skin and eyes, including those caused by gases; (4) growth stages of the mold *Penicillium notatum* and the use of penicillin in treating burns and industrial injuries.

ROBERT KEHOE, JOSEPH TREON, WILLIAM E. CRUTCHFIELD JR. and KARL V. KITZMILLER, Kettering Laboratory of Applied Physiology, University of Cincinnati College of Medicine, Cincinnati:

Toxicology of Some Alicyclic Compounds: Exhibit giving (1) the lethal dosage of cyclohexane, cyclohexanol, cyclohexanone and their methyl derivatives, when administered orally and applied on the skin, (2) the toxic and innocuous concentrations of these materials in the form of vapor in air and (3) information concerning the metabolism and disposition of these compounds in the animal body.

OREN C. DURHAM, Abbott Laboratories, North Chicago, Ill.:

Newer Methods in Aerobiology as Applied to Allergy: Exhibit concerning studies in the quantitative exposure of the allergic individual to atmospheric allergens, consisting of recently developed and adapted aerobiologic apparatus for experimental determination of volumetric incidence of pollens, fungus spores and other air borne allergens; demonstration of technic of parallel gravity-volumetric tests; methods of interpretation and existing data secured by the gravity method; graphic results. Differentiation of pollen grains and simple methods for local pollen surveys are shown.

HOWARD J. SHAUGHNESSY, FRANCES FRIEWER and ROLAND R. CROSS, Director, Illinois Department of Public Health, Chicago and Springfield, Ill.:

Salmonellosis—A Public Health Problem: Exhibit of charts and drawings showing the sources of infection and means of dissemination of *Salmonella* types in man; charts and photographs showing clinical symptoms and case records; charts showing the distribution of types identified by the several laboratories in the United States; cabinet with laboratory equipment and material showing the procedures in the laboratory examination of the specimen.

C. F. JORDAN, Iowa State Department of Health, Des Moines, Iowa; I. H. BORTS, State Hygiene Laboratory, Iowa City, and S. H. McNUTT, Iowa State College, Ames, Iowa:

Brucellosis: Exhibit showing the etiology; organisms of the *Brucella* group; pathology in animals and modes of transmission to man; epidemiologic aspects, including reported occurrence in the United States; distribution of cases according to age and sex, month of onset of illness and occupation; survey findings; symptomatology, complications; diagnosis; laboratory procedures; treatment; control and preventive measures.

Section on Urology

The representative to the Scientific Exhibit from the Section on Urology is John H. Morrissey, New York:

V. S. COUNSELLER, Mayo Clinic, Rochester, Minn.:

Surgical and Postoperative Treatment of Vesicovaginal Fistulas: Exhibit demonstrating the surgical repair of various types of vesicovaginal fistulas. It shows types of vesicovaginal fistulas encountered and the importance of the relative position of the fistula to the (1) urethral sphincter, (2) ureteral meatus, (3) trigone, (4) fundus and (5) upper urinary tract. Proper postoperative care is emphasized.

TOBIAS WEINBERG and BENJAMIN S. ABESHOUSE, Sinai Hospital, Baltimore:

Clinicopathologic Correlation of Renal Neoplasms: Exhibit analyzing the clinical manifestations and their relationship to the pathologic findings; selected cases presented depicting the gross and microscopic appearance of the neoplasms and pertinent data.

MILTON FRIEDMAN, Major, M. C., A. U. S., and LLOYD G. LEWIS, Lieutenant Colonel, M. C., A. U. S., Walter Reed General Hospital, Washington, D. C.:

An Improved Technic for the Treatment of Carcinoma of the Testis: Exhibit of 75 cases of carcinoma of the testis treated within the past two years at Walter Reed General Hospital. These were studied from the surgical and radiotherapeutic points of view. Various measured amounts of roentgen rays were first delivered to the tumor. The testis was then removed in order to study the histologic radiation effects and to determine whether the dose delivered was lethal to the tumor. This study indicated the amount of radiation which was to be delivered to the retroperitoneal nodes. A radical dissection of the retroperitoneal nodes was then performed for purposes of exploration, removal of nodes where feasible, location of the common channels of extension of the tumor and determination of the regions which were to receive postoperative irradiation. An improved technic of postoperative irradiation is described. These procedures yielded information which permitted intelligent treatment of the individual case.

Section on Orthopedic Surgery

The representative to the Scientific Exhibit from the Section on Orthopedic Surgery is Fremont A. Chandler, Chicago.

R. K. GHORMLEY, Mayo Clinic, Rochester, Minn.:

Pedicle Grafts to Deep Skin Defects of the Foot and Ankle: Exhibit showing (1) the surgical technic employed in pedicle grafts to deep skin defects of the foot and ankle; (2) typical results obtained.

JOHN J. FAHEY, Chicago:

Circulation of the Femoral Head: Gross anatomy is shown by dissected specimens. Microscopic sections of the femoral head and neck in growing children and adults show the relation of the circulation to the epiphysal cartilage plate and the epiphysis. A study of the circulation within the bone in full time stillbirths and adult hips is demonstrated by india ink injections and clearing.

J. E. M. THOMSON, University of Nebraska, Lincoln, Neb.:

Local Shock—A Vasomotor Phenomenon Occurring in Certain Severe Injuries of the Extremities: Exhibit showing the effect of procaine block of controlling sympathetics by transparencies of descriptive material gathered from research and clinical investigations with technic, microscopic slides and photomicrographs.

JOHN O. DIETERLE, Milwaukee:

Treatment of Fractures of Forearm, Hip, Os Calcis and Ankle Joint: 1. Single or double forearm fractures in the middle one third are often hard to reduce by closed methods. In this exhibit the technic of the open reduction method of Hey-Groves, utilizing beef bone intramedullary pegs, will be illustrated. 2. Fracture dislocations of the ankle joint involving the lower tibial articulation should be accurately reduced and maintained by combined internal and external fixation. The exhibit will show the author's method of maintaining reduction by the use of transfixing wires. 3. In this exhibit the method of maintaining reduction in intracapsular fractures of the hip by the use of Telson screws will be illustrated. The screws are introduced subcutaneously and without the use of any special apparatus. The procedure here shown is presented as one of the less complicated methods of treatment of hip fractures. 4. In the exhibit the apparatus used for skeletal traction in fractures is made on the necessity of restoring the contour of the os calcis as much as possible. Many of the important points in the treatment will be emphasized.

Section on Gastro-Enterology and Proctology

The representative to the Scientific Exhibit from the Section on Gastro-Enterology and Proctology is Grant H. Laing, Chicago:

J. A. ROTH, A. C. IVY and A. J. ATKINSON, Northwestern University Medical School, Chicago:

Effect of Caffeine on the Stomach: Exhibit showing peptic ulcers in cats with caffeine, gastric secretory response to caffeine and coffee in cats and normal human subjects; synergism of caffeine and histamine, and gastric secretory response to caffeine in ulcer patients.

MOSES EINHORN, New York:

Effective Treatment of Cardiospasm: Exhibit illustrating the study of 30 cases of cardiospasm, according to sex, age of onset, duration of the disease and cardinal symptoms elicited from their clinical histories. Photographs show types of cardiospasm, according to roentgen findings. The effects of the duration of the disease on the extent of esophageal dilatation are illustrated by diagrams. Highlights of effective treatment are explained by charts: (1) methods of removal of esophageal retention by means of continuous esophageal lavage; (2) principles of gastric feedings; (3) retrolateral traction dilation. The advantages of these methods and follow-up of the cases will be given.

LEO L. HARDT, ERNEST C. OLSON, JACK I. RABENS and A. R. HUFFORD, Illinois Central Hospital, Cook County Hospital and Municipal Tuberculosis Sanitarium, Chicago:

Gastroscopy as an Aid in Diagnosis: Exhibit showing roentgenograms and gastroscopic views with a summary of approximately 1,500 cases that have been examined in the past five years; demonstration of a new flexirigid gastroscope and new transformer to replace the battery or rheostat. (Motion picture in the Casino, Morrison Hotel.)

Section on Radiology

The representative to the Scientific Exhibit from the Section on Radiology is S. W. Donaldson, Ann Arbor, Mich.

HENRY K. TAYLOR, Goldwater Memorial Hospital, Welfare Island, N. Y.:

Bone Infarcts and Aseptic Necrosis: Bone infarcts and aseptic necrosis occurring in 14 caisson and 33 noncaisson workers. The caisson worker is subjected to changes in atmospheric pressure. Most caisson workers, not all, show bone and/or joint changes. Some admit to one or more attacks of the bends. Others, without bone or joint changes, admit to several attacks of the bends, or aeroembolism. The shaft and joint lesions do not develop immediately after aeroembolism. Considerable time must elapse. The shaft lesions are usually asymptomatic and discovered accidentally. The joint lesions develop secondary arthritic changes which ultimately present an appearance similar to a chronic hypertrophic osteoarthritis. The lesions in both groups present roentgenographic appearances which are similar and at times cannot be differentiated one from the other. In the caisson worker the etiologic factor is the inert gas nitrogen, in bubble formation, acting as an embolus, or pressure, or both, interfering with the circulation to the part. In the noncaisson worker there is no apparent etiologic factor, and the obstructing factor, or factors, is unknown. The bone lesions may be single. Usually they are multiple and often bilateral. Workers under compressed air present extensive and multiple lesions more often than the others. In the noncaisson worker, where the lesion is single and not extensive, the reparative changes are greater. Because of the presence of bone and joint changes in caisson workers, a long range investigation is warranted of all personnel in the armed forces subjected to either slow or rapid changes in atmospheric pressure, such as deep sea divers, submarine personnel, air personnel and others engaged in high altitude flying.

LEO G. RIGLER, HENRY S. KAPLAN and DANIEL L. FINK, University of Minnesota, Minneapolis:

Pernicious Anemia, Benign Polyps and Carcinoma of the Stomach: Exhibit showing studies on the relationship of benign to malignant tumors of the stomach and their association with pernicious anemia. Investigation of a large autopsy series indicates a far greater incidence of gastric tumors in patients with pernicious anemia than in the remainder of the population. Routine semiannual roentgen examinations of the stomach in patients with pernicious anemia confirm such findings. By this procedure many tumors in symptomless individuals have been discovered. The possibility of the early diagnosis of gastric tumors by roentgen examination before the appearance of symptoms will be exhibited by means of case studies.

Section on Anesthesiology

The representative to the Scientific Exhibit from the Section on Anesthesiology is E. A. Rovenstine, New York.

JOHN S. LUNDY, R. C. ADAMS and T. H. SELDON, Mayo Clinic, Rochester, Minn.:

Technic of Venipuncture and Parenteral Therapy: Exhibit demonstrating various technics employed in venipuncture for infusion, transfusion and intravenous anesthesia. A series of mouldages, drawings and photographs demonstrate the veins of the extremities. Type of syringes and needles used, proper use of tourniquet, method of distending veins, the skin wheal and

bevel of needle in relation to venipuncture are shown. Another set of moulages demonstrate step by step the proper technic of venipuncture for infusion or transfusion and intravenous anesthesia.

R. A. WOODBURY, B. E. ABREU and P. P. VOLPITTO, University of Georgia School of Medicine, Augusta, Ga.:

Influence of Different Forms of Artificial Respiration on the Pulmonary and Systemic Blood Pressure: Exhibit showing effects of eight methods of artificial respiration on the pulmonary and systemic blood pressures of dogs with slight, severe and complete cardiovascular respiratory depression. An improved technic has been developed for measuring the effective pulmonary and effective systemic blood pressure in unanesthetized animals not operated on. The resuscitative methods do not all significantly differ in their influence on the effective net pulmonary and net systemic blood pressures and produce little if any change in these pressures. In the presence of cardiac arrest they can cause a small blood flow through the ventricles. However, this blood flow which was produced by the resuscitators did not reach the vital areas (coronary and cerebral arteries). The blood was pushed toward the extremities and cutaneous areas.

ROBERT A. HINGSON, United States Marine Hospital, Staten Island, New York, and Philadelphia Lying-In Hospital, Philadelphia, and WALDO B. EDWARDS and JAMES L. SOUTHWORTH, United States Marine Hospital, Staten Island, New York:

Continuous Caudal Analgesia: Exhibit emphasizing the anatomy of the peridural space, its relationship to the other structures comprising the vertebral column, the neurology of the uterus and the birth canal, and the variations of the human sacrum, particularly those of the sacral hiatus. The various techniques with the malleable steel needle and the ureteral catheter are presented. The new psychology in managing patients during labor and delivery who are mentally wide awake is introduced. The pharmacologic safeguards necessary to prevent complications in the protection of both mother and baby are emphasized. A personal experience with more than 4,000 obstetric, surgical and medical cases is reviewed. The therapeutic application of the method to sciatica, eclampsia, thrombophlebitis and peripheral vascular diseases is included. (Motion picture in the Casino, Morrison Hotel.)

E. A. ROVENSTINE and S. G. HERSHEY, New York University College of Medicine, New York:

Therapeutic Nerve Block: Exhibit displaying an adult body size moulage with landmarks drawn on it and needles in place to demonstrate therapeutic nerve blocking. Drawings and charts will be used to show the clinical application of nerve blocks. Diagnostic instruments, record forms and other material are presented to show the organization of the nerve block clinic.

MILDRED TROTTER, VIRGINIA S. LANIER, GORDON S. LETTERMAN and HOWARD E. MCKNIGHT, Department of Anatomy, Washington University School of Medicine, St. Louis:

Continuous Caudal Analgesia; Pertinent Anatomic Features: Exhibit of sacrums demonstrating both normal and variant features; charts and roentgenograms illustrating levels reached by injections into the epidural space through the sacral hiatus; specimens prepared to show the relation between the dural sac and the apex of the sacral hiatus. (Aided by a grant from the U. S. Public Health Service.)

URBAN H. EVERSOLE, LEO V. HAND and MORRIS J. NICHOLSON, Lahey Clinic, Boston:

Spinal Anesthesia: Exhibit illustrating (1) the preparation of the patient for spinal anesthesia, (2) the administration of the agent and the management of the patient under spinal anesthesia, and (3) the prevention and management of operative and postoperative complications.

MOTION PICTURES

Casino, Lower Lobby, Morrison Hotel

Motion pictures will be presented under the auspices of the Committee on Scientific Exhibit on a regular schedule throughout the week. They will be shown in the Casino at the Morrison Hotel.

Monday, June 12, 2 p. m.

Motion pictures from the United States Army, the United States Navy and the United States Public Health Service, dealing with insects and insect-borne diseases, will be shown. Other films present subjects by individual investigators.

MEDICAL DEPARTMENT TRAINING FILMS, U. S. Army:

The Fly.

The Louse.

Louse-Borne Diseases.

Malaria, Cause and Control.

BUREAU OF MEDICINE and SURGERY, U. S. Navy:

Life Cycle of Endamoeba Histolytica.

UNITED STATES PUBLIC HEALTH SERVICE:

Life History of the Rocky Mountain Wood Tick.

Rocky Mountain Fever Vaccine.

M. E. BARNES, University of Iowa School of Medicine, Iowa City:

Trichinosis.

D. J. LEITHAUSER, Detroit:

Out of Bed Within Twenty-Four Hours After Operation Prevents Pulmonary, Circulatory and Other Complications and Hastens Recovery.

LEO L. HARDT, Illinois Central Hospital, Chicago:

Gastroscoy as an Aid in Diagnosis of Diseases of the Stomach.

(Exhibit in Space B-12, Scientific Exhibit, Palmer House.)

Tuesday, June 13, 9 a. m.

Motion pictures will be shown from the Section on Nervous and Mental Diseases. Other films deal with the subject of rehabilitation.

RUDOLPH JAEGER, Jefferson Medical School and Hospital, Philadelphia:

Intervertebral Disk Injury (Herniated Nucleus Pulposus) Causing Sciatic Neuralgia.

'Compound Depressed Fracture of the Skull.

A. E. BENNETT, University of Nebraska College of Medicine, Omaha, and PAUL T. CASH, Captain, M. C., U. S. Army.

Curare Sensitivity as a Diagnostic Test of Myasthenia Gravis.

E. S. GURDJIAN and JOHN E. WEBSTER, Major, M. C., A. U. S., Wayne University College of Medicine and Grace Hospital, Detroit:

Operative Management of Traumatic Intracranial Hemorrhage.

(Exhibit in Space D-24, Scientific Exhibit, Palmer House.)

HAROLD C. VORIS, Chicago:

Middle Meningeal Hemorrhages.

Subdural Hematoma.

GEORGE N. THOMPSON, Los Angeles County General Hospital, Los Angeles:

Electronarcosis—A Therapy in Schizophrenia and Certain Mental Disorders.

ORA L. HUDDLESTON, Major, M. C., A. U. S., Physical Therapy Section, Fitzsimons General Hospital, Denver:
Convalescent Ward at Fitzsimons General Hospital.

HOWARD A. RUSK, Lieutenant Colonel, M. C., U. S. Army Air Forces Headquarters, Washington, D. C.:
Convalescent Training in the Army Air Forces.
(Exhibit in Space A-9, Scientific Exhibit, Palmer House.)

REX L. DIVELEY, Colonel, U. S. Army Medical Corps, Office of the Surgeon General, War Department, Washington, D. C., and FRANK D. DICKSON, Kansas City, Mo.:
Rehabilitation of War Casualties.

Tuesday, June 13, 2 p. m.

Motion pictures dealing with various phases of anesthesia will be presented.

HAROLD F. BISHOP, Major, M. C., A. U. S., and BRIAN B. BLADES, Major, M. C., A. U. S., Washington, D. C.:
Continuous Caudal Anesthesia in Obstetrics.
A Study of Fresh Lung Specimens from the Surgical and Anesthetic Aspects.
The Blocking of Sympathetic Chain Ganglions.

ROBERT A. HINGSON, United States Marine Hospital, Staten Island, New York, and Philadelphia Lying-In Hospital, Philadelphia:
Continuous Caudal Analgesia in Obstetrics.
(Exhibit in Space F-39, Scientific Exhibit, Palmer House.)

JOHN H. EVANS, Buffalo:
Control of Pain and Discomfort by the Subcutaneous Injection of Oxygen.

FREDERICK M. ALLEN, City Hospital, New York:
Refrigeration Anesthesia.
(Exhibit in Space C-1, Scientific Exhibit, Palmer House.)

EDWARD B. TUOHY, Captain, M. C., A. U. S., Percy Jones General Hospital, Battle Creek, Mich.:
Continuous Spinal Anesthesia Utilizing the Ureteral Catheter Technique.

Wednesday, June 14, 9 a. m.

Motion pictures on surgery—plastic surgery especially—will be shown.

ADOLPH M. BROWN, The Eye and Ear Infirmary, University of Illinois, Chicago:
Prosthetic Correction of Inoperable Facial Deformities.

EDGAR J. POTH, University of Texas Medical Branch, Galveston:
A Technic of Skin Grafting: Instruments and Procedures.

HENRY N. HARKINS, Johns Hopkins University School of Medicine, Baltimore:
Treatment of Burns.
(Exhibit in Space F-25, Scientific Exhibit, Palmer House.)

EARL C. PADGETT, Kansas City, Mo.:
Skin Grafting and "Three Quarter" Thickness Skin Graft for Prevention and Correction of Cicatricial Formation.
(Exhibit in Space F-26, Scientific Exhibit, Palmer House.)

J. EASTMAN SHEEHAN, New York:
Plasma Fixation Method of Applying Skin Graft to Cover Large Raw Area of Leg.
Repair of Contracted Hand by Intermediate Skin Graft.
Use of Pinch Grafts to Cover a Large Arco of Defect.

JAMES B. BROWN, Colonel, M. C., A. U. S., and FRANK McDOWELL, St. Louis:
Late Functional Results in the Free Skin Grafting of Burns.

HARRY E. BACON, Temple University School of Medicine, Philadelphia:

Surgical Treatment of Cancer of the Rectum Without Colostomy and With Preservation of the Sphincter Muscles.

Wednesday, June 14, 2 p. m.

Motion pictures on miscellaneous subjects will be shown.

HARRY M. KIRSCHBAUM, Lieutenant Colonel, M. C., A. U. S., Patterson Field, Fairfield, Ohio:

Effect of Anoxia on the Sound of the Dog's Heart.

BENJAMIN JABLONS, New York:
The Diagnosis and Treatment of Peripheral Vascular Disease.

ABNER I. WEISMAN, New York:
A New Technic in Uterotubal X-Rays in the Diagnosis of Female Sterility.

M. E. BARNES, University of Iowa School of Medicine, Iowa City:

Trichinosis.

D. J. LEITHAUSER, Detroit:
Out of Bed Within Twenty-Four Hours After Operation Prevents Pulmonary, Circulatory and Other Complications and Hastens Recovery.

LEO L. HARDT, Illinois Central Hospital, Chicago.
Gastroscopy as an Aid in Diagnosis of Diseases of the Stomach.
(Exhibit in Space B-12, Scientific Exhibit, Palmer House.)

Thursday, June 15, 9 a. m.

Motion pictures on various phases of anesthesia will be shown.

HAROLD F. BISHOP, Major, M. C., A. U. S., and BRIAN B. BLADES, Major, M. C., A. U. S., Washington, D. C.:
Continuous Caudal Anesthesia in Obstetrics.
A Study of Fresh Lung Specimens from the Surgical and Anesthetic Aspects.
The Blocking of Sympathetic Chain Ganglions.

ROBERT A. HINGSON, United States Marine Hospital, Staten Island, New York, and Philadelphia Lying-In Hospital, Philadelphia:
Continuous Caudal Analgesia in Obstetrics.
(Exhibit in Space F-39, Scientific Exhibit, Palmer House.)

JOHN H. EVANS, Buffalo:
Control of Pain and Discomfort by the Subcutaneous Injection of Oxygen.

FREDERICK M. ALLEN, City Hospital, New York:
Refrigeration Anesthesia.
(Exhibit in Space C-1, Scientific Exhibit, Palmer House.)

EDWARD B. TUOHY, Captain, M. C., A. U. S., Percy Jones General Hospital, Battle Creek, Mich.:
Continuous Spinal Anesthesia Utilizing the Ureteral Catheter Technique.

Thursday, June 15, 1:30 p. m.

Motion pictures will be shown dealing with various phases of nervous and mental diseases and with rehabilitation.

RUDOLPH JAEGER, Jefferson Medical School and Hospital, Philadelphia:
Intervertebral Disk Injury (Herniated Nucleus Pulposus) Causing Sciatic Neuralgia.
Compound Depressed Fracture of the Skull.

A. E. BENNETT, University of Nebraska College of Medicine, Omaha, and PAUL T. CASH, Captain, M. C., U. S. Army:
Curare Sensitivity as a Diagnostic Test of Myasthenia Gravis.

E. S. GURDJIAN and JOHN E. WEBSTER, Major, M. C., A. U. S., Wayne University College of Medicine and Grace Hospital, Detroit:

Operative Management of Traumatic Intracranial Hemorrhage.
(Exhibit in Space D-24, Scientific Exhibit, Palmer House.)

HAROLD C. VORIS, Chicago:
Middle Meningeal Hemorrhages.
Subdural Hematoma.

GEORGE N. THOMPSON, Los Angeles County General Hospital, Los Angeles:
Electronarcosis—A Therapy in Schizophrenia and Certain Mental Disorders.

ORA L. HUDDLESTON, Major, M. C., A. U. S., Physical Therapy Section, Fitzsimons General Hospital, Denver:
Convalescent Ward at Fitzsimons General Hospital.

HOWARD A. RUSK, Lieutenant Colonel, M. C., U. S. Army Air Forces Headquarters, Washington, D. C.:
Convalescent Training in the Army Air Forces.
(Exhibit in Space A-9, Scientific Exhibit, Palmer House.)

REX L. DIVELEY, Colonel, U. S. Army Medical Corps, Office of the Surgeon General, War Department, Washington, D. C., and FRANK D. DICKSON, Kansas City, Mo.:
Rehabilitation of War Casualties.

Friday, June 16, 9 a. m.

Motion pictures will be shown on plastic surgery and other miscellaneous subjects.

ADOLPH M. BROWN, The Eye and Ear Infirmary, University of Illinois, Chicago:

Prosthetic Correction of Inoperable Facial Deformities.

EDGAR J. POTH, University of Texas Medical Branch, Galveston:

A Technic of Skin Grafting: Instruments and Procedures.

HENRY N. HARKINS, Johns Hopkins University School of Medicine, Baltimore:

Treatment of Burns.

(Exhibit in Space F-25, Scientific Exhibit, Palmer House.)

EARL C. PADGETT, Kansas City, Mo.:

Skin Grafting and "Three Quarter" Thickness Skin Graft for Prevention and Correction of Cicatricial Formation.

(Exhibit in Space F-26, Scientific Exhibit, Palmer House.)

J. EASTMAN SHEEHAN, New York:

Plasma Fixation Method of Applying Skin Graft to Cover Large Raw Area of Leg.

Repair of Contracted Hand by Intermediate Skin Graft.

Use of Pinch Grafts to Cover a Large Area of Defect.

JAMES B. BROWN, Colonel, M. C., A. U. S., and FRANK McDOWELL, St. Louis:

Late Functional Results in the Free Skin Grafting of Burns.

HARRY M. KIRSCHBAUM, Lieutenant Colonel, M. C., A. U. S., Patterson Field, Fairfield, Ohio:

Effect of Anoxia on the Sound of the Dog's Heart.

BENJAMIN JABLONS, New York:

The Diagnosis and Treatment of Peripheral Vascular Disease.

ABNER I. WEISMAN, New York:

A New Technic in Uterotubal X-Rays in the Diagnosis of Female Sterility.

Friday, June 16, 2 p. m.

Training films from the Bureau of Medicine and Surgery, U. S. Navy, and the Medical Department of the U. S. Army will be shown.

BUREAU OF MEDICINE AND SURGERY, U. S. Navy:

Medical Department in Amphibious Assault.

Pacific Island Number 43.

Protection Against Chemical Warfare—Common Gases.

Protection Against Chemical Warfare—The Gas Mask.

MEDICAL DEPARTMENT TRAINING FILMS, U. S. Army:

First Aid for Battle Injuries.

First Aid for Non-Battle Injuries

First Aid for Chemical Casualties.

Awards

There will be two groups of awards in the Scientific Exhibit, consisting each of (a) gold medal, (b) silver medal, (c) bronze medal, (d) certificates of merit and (e) honorable mention.

[NOTE.—The special subsidized exhibits (fractures, burns, chemotherapy and infectious diseases, and rehabilitation) are not open to awards.]

GROUP I

Awards in group I are made for exhibits of individual investigations, which are judged on basis of originality and excellence of presentation.

GROUP II

Awards in group II are made for exhibits that do not exemplify purely experimental studies but which are judged on basis of the excellence of correlating facts and excellence of presentation.

THE TECHNICAL EXPOSITION

STEVENS HOTEL, CHICAGO, JUNE 12-16

Occupying the Lower Level and Second Floor Areas of the Hotel

Each year the Technical Exposition seems to take on more importance as a Convention feature of practical interest and usefulness to physicians. For the most part it is a showing of necessities and accessories of medical practice now geared to civilian as well as military needs. The scope of this exhibition is wide, and any visiting member will do well to reserve sufficient time to review the many interesting and educational features presented by the two hundred or more firms participating in the Technical Exhibition. To summarize completely the content of this elaborate showing would require more space than is available; however, the following is a brief classification based on information already at hand:

Improved scientific equipment of all kinds; diagnostic aids; roentgenoscopic, radioscopy and fluoroscopic equipment devel-

oped to war needs; latest in instruments and laboratory requirements; diathermy, ultraviolet equipment and accessories; metabolic, electrocardiographic and resuscitating units; latest textbooks on practice of general medicine and the specialties; a crystallization of pharmaceutical developments along all lines, notably penicillin, shown in various methods of development and production; the sulfonamides; vitamins; new and important therapeutic agents of special interest to the profession; infant dietary specialties; foods of special purpose and general consumption; orthopedic appliances developed to exacting demands of World War II; scientifically adapted supportive appliances—shoes, clothing and so on; cosmetics developed under formulas that recognize known factors of interest to physicians in their relations to patients;

(Continued on advertising page 90)

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—The subcommittee of the House Committee on Appropriations concluded hearings, April 27, on the proposed additional appropriation to continue the program of supplying obstetric and pediatric care to the wives and infants of servicemen. S. 1808 has been ordered favorably reported by the Senate Committee on Military Affairs, a bill to authorize temporary appointments as officers in the Army of the United States of members of the Army Nurse Corps, female dietetic and physical therapy personnel of the Medical Department of the Army, exclusive of students and apprentices, and female persons having the necessary qualifications for appointment in such department as female dietetic or physical therapy personnel. S. 1809 has been ordered favorably reported by the Senate

Committee on Military Affairs, a bill to remove the limitation on the right to command of officers of the Dental Corps of the Army which limits such officers to command in that corps.

Bills Introduced.—S. 1861, introduced by Senator Andrews, Florida, proposes to authorize the Secretary of the Navy to establish a Dental Department in the Navy to function under the Surgeon General as is now provided in the case of the Medical Department. H. R. 4663, introduced by Representative Miller, Nebraska, proposes to transfer to the Federal Security Administrator and the Public Health Service, respectively, the functions of the Secretary of Labor and the Children's Bureau of the Department of Labor with respect to health. This bill is pending in the House Committee on Expenditures in the Executive Departments.

WOMAN'S AUXILIARY

WINNERS IN THE HYGEIA CONTEST

The American Medical Association offered \$400 in cash prizes to the state and county auxiliaries which obtained the largest number of subscription credits to *Hygeia*. The contest covered the period from Sept. 1, 1943 to Jan. 31, 1944.

Cash prizes were awarded as follows:

Group 1. Auxiliaries with a membership of from 1 to 13:

First prize, \$40, to Childress-Collingsworth-Hall counties, Texas, Mrs. R. E. Clark, Hygeia chairman, Memphis, Texas.

Second prize, \$25, to Cass County, Mo., Mrs. David Long, Hygeia chairman, Harrisonville, Mo.

Third prize, \$15, to Washington County, Minn., Mrs. D. Kalinoff, Hygeia chairman, Stillwater, Minn.

Group 2. Auxiliaries with a membership of from 14 to 23:

First prize, \$40, to Walla Walla Valley, Wash., Mrs. J. T. Rooks, Hygeia chairman, Walla Walla, Wash.

Second prize, \$25, to Vermilion County, Ill., Mrs. R. E. Johnson, Hygeia chairman, Danville, Ill.

Third prize, \$15, to Chelan County, Wash., Mrs. George Hoxsey, Hygeia chairman, Wenatchee, Wash.

Group 3. Auxiliaries with a membership of from 24 to 42:

First prize, \$40, to Raleigh County, W. Va., Mrs. A. C. Echols, Hygeia chairman, Layland, W. Va.

Second prize, \$25, to Kitsap County, Wash., Mrs. K. P. Jackson, Hygeia chairman, Bremerton, Wash.

Third prize, \$15, to Utah County, Utah, Mrs. Elden Clark, Hygeia chairman, Provo, Utah.

Group 4. Auxiliaries with a membership of from 43 to 643:

First prize, \$40, to Westmoreland County, Pa., Mrs. A. B. Blackburn, Hygeia chairman, Latrobe, Pa.

Second prize, \$25, to Salt Lake County, Utah, Mrs. W. R. Rumel, Hygeia chairman, Salt Lake City, Utah.

Third prize, \$15, to Pierce County, Wash., Mrs. R. H. Rca, Hygeia chairman, Fort Steilacoom, Wash.

State winners:

First prize, \$40, to state of Utah, Mrs. G. G. Moyes, Hygeia chairman, Ogden, Utah.

Second prize, \$25, to state of Washington, Mrs. Elmer Porter, Hygeia chairman, Port Orchard, Wash.

Third prize, \$15, to state of Illinois, Mrs. C. W. Stuart, Hygeia chairman, Oak Park, Ill.

Honorable Mention was given to the following counties:

Calhoun County, Ala., Mrs. C. H. Cleveland, chairman, Anniston, Ala.

St. Joseph County, Mich., Mrs. D. M. Kane, president, Sturgis, Mich.

Wayne County, N. C., Mrs. Ira C. Long, chairman, Goldsboro, N. C.

Lebanon County, Pa., Mrs. John E. Marshall, chairman, Lebanon, Pa.

Venango County, Pa., Mrs. P. E. Cunningham, chairman, Franklin, Pa.

Kenosha County, Wis., Mrs. L. T. Kent, chairman, Kenosha, Wis.

Washington-Ozaukee counties, Wis., Mrs. A. H. Barr, chairman, Port Washington, Wis.

Laramie County, Wyo., Mrs. G. B. Savory, chairman, Cheyenne, Wyo.

Other counties that have reached or exceeded their quota and had at least 25 subscription credits were Cook County, Ill.; Rock Island County, Ill.; St. Clair County, Ill.; Sangamon County, Ill.; Dallas-Guthrie counties, Iowa; Ouachita County, La.; Wayne County, Mich.; Buchanan County, Mo.; Greene County, Mo.; Jackson County, Mo.; Stark County, Ohio; Oklahoma County, Okla.; Bucks County, Pa.; Mercer County, Pa.; Warren County, Pa.; Hunt-Rockwell-Raines counties, Texas; Lamar County, Texas; Clark County, Wash.; Cowlitz County, Wash.; King County, Wash.; Snohomish County, Wash.; Spokane County, Wash.; Harrison County, W. Va.; Rock County, Wis.

This year's contest resulted in 8,322 subscription years as compared to 6,826 subscription years received during last year's contest.

To the Hygeia chairmen, officers and members of the various county and state woman's auxiliaries who have assisted in making this contest a success, Mrs. Arthur I. Edison, national Hygeia chairman, and the circulation manager of *Hygeia* express appreciation.

OFFICIAL NOTES

DOCTORS AT WAR

Radio broadcasts of Doctors at War by the American Medical Association in cooperation with the National Broadcasting Company and the Medical Department of the United States Army and the United States Navy are on the air each Saturday at 4:30 p. m. Eastern war time (3:30 Central war time, 2:30 Mountain war time and 1:30 Pacific war time).

The titles and guest speakers for the next three programs are as follows:

May 6. "They Shall Walk Again."

Speaker, Lieut. Comdr. Edward L. Corey, U.S.N., Washington, D. C.

May 13. No program. See below.

May 20. "War Nerves."

Speaker, Lieut. Col. Harold C. Lueth, M. C., A. U. S., Surgeon General's Liaison Officer, American Medical Association.

Doctors at War will not be on the air May 13, having relinquished its time on that date to the Office of War Information for the broadcast of a nationwide program in connection with the Cadet Nurse Corps of the U. S. Public Health Service.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Outbreak of Undulant Fever.—Fifteen cases of undulant fever with one death recently occurred in a small community in the northern counties of the state, according to *California's Health*. All of the milk used by those who were sick came from a single large local dairy that distributed raw milk. An investigation by the state department of agriculture showed that 75 per cent of the herd reacted to tests for undulant fever.

Meeting on the Heart.—At the meeting of the California Heart Association at the Biltmore Hotel, Los Angeles, May 6, the speakers include:

Comdr. John Russell Twiss (MC), Penicillin in the Treatment of Rheumatic Fever and Other Conditions in a Naval Hospital.

Dr. Morris H. Nathanson, Los Angeles, Factors Influencing Circulation Time.

Dr. Clinton H. Thienes, Los Angeles, An Experimental Study of Factors Influencing Pulmonary Hemorrhage.

Drs. Salvatore P. Lucia and William N. Sears, San Francisco, Problems in the Prevention of Luetic Cardiovascular Disease.

Drs. John Martin Askey and Otto Neurath, Los Angeles, The Prognostic Significance of Auricular Fibrillation Occurring with Myocardial Infarction.

New School of Public Health.—The establishment of a School of Public Health at the University of California, Berkeley, has been announced. Dr. Walter H. Brown, chairman of the department of hygiene, has been appointed acting dean, and the state assembly has made an appropriation to support the school. The new unit is planned as a universitywide undertaking using the resources of all the campuses and involves the participation of other schools and departments including the fields of medicine, medical research, education nursing, home economics and sanitary engineering. The department of hygiene will be renamed the department of public health and will function as part of the new school. Provision is to be made for graduate training of all types of public health personnel. According to an announcement from Dr. Brown, the first official activity of the school was a special training course for sanitarians to meet the needs of the state department of public health in the war emergency.

ILLINOIS

State Medical Meeting.—The one hundred and fourth annual session of the Illinois State Medical Society will be held at the Palmer House, Chicago, May 16-18. The oration in medicine will be delivered by Dr. Paul Dudley White, Boston, on "The Evolution of Our Knowledge of Coronary Heart Disease" and the oration in surgery by Brig. Gen. Fred W. Rankin, M. C., on "Progress in the Army Medical Services." Among the speakers will be:

Dr. Karl A. Meyer, Chicago, Surgical Indications.

Dr. Edward A. Piszezsek, Chicago, Tuberculosis—A New Postwar Public Health Problem.

Dr. James P. Simonds, Chicago, Pathologic Basis for Clinical Manifestations in Nephritis.

Drs. Robert A. Hingson Jr. and Waldo B. Edwards, Philadelphia, Continuous Caudal Anesthesia.

Dr. Harold Gifford Jr., Omaha, The More Common Lacrimal Problems.

One session Wednesday morning will be devoted to chemotherapy, with Drs. Meyer, Alexander E. Brown, Rochester, Minn., and Alfred J. Aselmeyer, surgeon, U. S. Public Health Service, participating. Another session will be devoted to postwar public health service with Drs. Richard F. Boyd, Springfield, Conrad S. Sommer, Chicago, Adolph S. Rumreich, senior surgeon, U. S. Public Health Service, and Hugo V. Hulleriman, Springfield, as speakers. Features will include a symposium on rheumatism, secretaries' conference, the veterans' service dinner conference and a fifty year club luncheon. Groups meeting during the session will include the Illinois Chapter of the American College of Chest Physicians, the Medical Women's Association, the Physician's Association and the Maternal Welfare Committee. Various alumni luncheons will be held. The Central States Society of Industrial Medicine and Surgery will be addressed on Tuesday by Dr. Harry E. Mock, Chicago, on "The Relation of Malignancy to Trauma" and Dr. Carl M. Peterson, Secretary, Council on Industrial Health, "The Changing Panorama of Industrial Medical Requirements."

Chicago

Dr. Volini Named Dean at Loyola.—Dr. Italo F. Volini, since 1929 professor and head of the department of medicine of Loyola University School of Medicine, has been named dean of the school for the duration of the war. Dr. Volini will take the place of Comdr. Francis J. Braceland (MC), on leave with the Navy.

Gold Headed Cane Awarded to Dr. Hektoen.—Dr. Ludvig Hektoen, executive director of the National Advisory Cancer Council of the U. S. Public Health Service, on April 8 was awarded the gold headed cane of the American Association of Pathologists and Bacteriologists in recognition of his distinguished service to pathology and his unselfish devotion to the highest ideals of the profession.

Dr. Karsner to Give First Zeit Lecture.—Dr. Howard T. Karsner, professor of pathology and director of the Institute of Pathology, Western Reserve University, Cleveland, will deliver the first Frederick Robert Zeit Lecture at Thorne Hall, Northwestern University Medical School, May 18, on "Hepatic Cirrhosis." The lecture is sponsored by the Xi chapter of Alpha Kappa Kappa Fraternity. The lecture honors the late Dr. Frederick Robert Zeit, who was professor of pathology at Northwestern University Medical School and founder of the Frederick Robert Zeit Museum of Pathology at the university.

KANSAS

State Medical Meeting.—The Kansas Medical Society will hold its eighty-fifth annual session in Topeka, May 10-11, under the presidency of Dr. John L. Lattimore, Topeka. Included among the speakers will be:

Dr. Robert D. Schrock, Omaha, Fractures and Dislocations of the Wrist.

Dr. Archibald L. Hoyne, Chicago, Management of Acute Infectious Diseases in Childhood.

Dr. Edward Massie, St. Louis, Newer Aspects in Management of Hypertension.

Dr. William G. Gordon, Kansas City, Renal Tuberculosis.

Dr. Udo J. Wile, Ann Arbor, Mich., Recent Advances in Syphilis Therapy.

Dr. Oscar Theron Clagett, Rochester, Minn., Surgical Management in Pulmonary Suppurative Disease.

Dr. Albert D. Ruedemann, Cleveland, Headaches and Head Pains of Interest to the General Man.

Dr. Morris Edward Davis, Chicago, Diagnosis and Treatment of Hemorrhage in Pregnancy.

Dr. John S. Coulter, Chicago, Physical Therapy in the Office.

Lieut. Col. Howard A. Rusk, M. C., will address the annual banquet Wednesday on "Convalescent Rehabilitation Program in the Army."

MASSACHUSETTS

State Medical Meeting in Boston.—The one hundred and sixty-third annual meeting of the Massachusetts Medical Society will be held at the Hotel Statler, Boston, May 22-24, under the presidency of Dr. Roger I. Lee, Boston. Included among the out-of-state speakers will be:

Dr. Philip D. Wilson, New York, Reconstructive Surgery.

Dr. Kristian G. Hansson, New York, Physical Therapy: Its Relation to War Injuries.

Dr. Winfred Overholser, Washington, D. C., Psychiatric Casualties of the War and Their Treatment.

Dr. Richard W. Te Linde, Baltimore, Some Practical Aspects of Female Genital Bleeding.

Dr. Howard Fox, New York, Tropical Diseases of the Skin.

Dr. Henry S. Ruth, Philadelphia, Postwar Planning in Anesthesiology.

Dr. Walter C. Alvarez, Rochester, Minn., Abdominal Pain.

Dr. Allen O. Whipple, New York, How Shall We Provide Postgraduate Training in Surgery for Men at Present Serving in the Armed Forces?

Dr. Joseph C. Aub, Boston, will deliver the annual oration Tuesday on "The Toxic Factor in Traumatic Shock" and Dr. Alfred Blalock, Baltimore, the Shattuck Lecture on "A Consideration of Certain Recent Advances in Surgery." At the annual dinner Tuesday evening, the speakers will include the governor of Massachusetts, Leverett Saltonstall, and William Cunningham of the Boston *Herald*. Special features will include symposiums on war injuries and gallbladder disease and a panel discussion on the selection and use of the newer drugs. There will be meetings of the regional fracture committee of Massachusetts of the American College of Surgeons, May 24; of the Massachusetts Medico-Legal Society, May 23, and of the Massachusetts members of the New England Society of Anesthesiology, May 24.

MICHIGAN

Physician Arrested on Narcotic Charge.—Dr. Ralph B. Howard, Benton Harbor, entered a nolo contendere plea of guilty in federal court, Grand Rapids, to a charge of "illegal sale of morphine sulfate in prescriptions not in the course of regular practice," newspapers reported March 17.

Program on Alcoholism.—At a statewide conference on the prevention and cure of alcoholism, sponsored jointly by the Michigan Temperance Foundation, Michigan State College of Agriculture and Applied Science, East Lansing, and Yale University, New Haven, Conn., April 19, the speakers included Lawrence Kolb, assistant surgeon general, U. S. Public Health Service, on "Public Health Aspects of the Alcohol Problem," and Dr. Haven Emerson, New York, "Education and Prevention of Alcoholism." Newspapers reported this conference to be the first meeting since the first School of Alcohol Studies at Yale University last summer (*THE JOURNAL*, Dec. 4, 1943, p. 916), although the university is said to be planning to cooperate in similar programs in other states.

Michigan Society and University Cooperate in Radio Talks.—A new series of popular medical talks began April 27 over station WJR, Detroit, under the auspices of the Michigan State Medical Society and the University of Michigan. Dr. Richard H. Freyberg gave the first lecture, on "Modern Treatment of Arthritis." Forthcoming lectures will include:

Dr. Ernest H. Watson, Accidents in Childhood, May 4.
Dr. Robert A. Hettig, Postwar Problems Relative to Tropical Diseases, May 11.
Dr. Russell N. DeJong, Sick Headaches: Their Significance and Treatment, May 18.

All speakers are members of the faculty of the University of Michigan Medical School, Ann Arbor.

MISSOURI

Medical Society Honors Mrs. Hirsch.—The Jackson County Medical Society presented an award key to Mrs. Ruth Hirsch recently in recognition of her outstanding work in the "interest of medicine and public health." The award represents seven years of "meritorious and untiring effort" on the part of Mrs. Hirsch, president of the Jackson County Health Forum Board, in arranging for speakers on public health problems for the education of the public. Dr. Morris Fishbein, Editor, *THE JOURNAL*, who addressed the forum on "New Knowledge of Cancer," made the presentation to Mrs. Hirsch. The award is a gold key bearing in white enamel the figure of the goddess Hygieia. It is a function of the public policy and relations committee of the society.

NEW YORK

Dental Caries Demonstration.—The New York State Department of Health has launched a long range demonstration in Newburgh and Kingston, in cooperation with local authorities, to determine the practicability of mass protection against dental caries by adding fluorine to public drinking water supplies. Dental examination will be made annually of all 5 to 12 year old children in the schools for a period of ten years, the results to be made available to the school superintendents each year. *Health News* reports that it will be about ten years before the full benefits of the treatment will be realized. One report stated that the fathers in Kingston have promised that their children will forego fluorine for the ten year period to provide a control group for Newburgh. The latter town will have the fluorine concentration increased from 0.12 part per million to 1.0 part per million. Examinations of salivas of a sample of the school populations will also be made to ascertain the amount of *Lactobacillus acidophilus* present. Pediatric examinations will be made of a sample of the child populations, including a general physical examination, urinalysis and x-ray films of the long bones and centers of ossification. Analysis of the water for fluorine concentration will be made at the filtration plant and at the division of laboratories and research of the state department of health, Albany.

New York City

More Investigating of "Kickbacks."—The commissioner of investigation stated on April 20 that an investigation was being made of alleged fee splitting between "certain doctors" at Queens General Hospital, Jamaica, and the operators of private ambulance services. According to the New York *Times* the inquiry, ordered by Mayor La Guardia March 20 at the request of Dr. Edward M. Bernecker, commissioner of hospitals, may be extended to include city hospitals in other boroughs. The commissioner of investigation, Edgar Bromberger, is reported to have said that his inquiry was mainly concerned with charges that some doctors at the Queens institution had received "kickbacks" in connection with fees charged patients using private ambulances when admitted to the hospital. It was stated that the investigation thus far had shown "reasonable grounds" to believe that admitting physicians have been guilty of official misconduct consisting in recommending to prospective patients or their families the use of private ambulance services.

Dr. Cowles Wins Court Decision.—Dr. Edward Spencer Cowles, director of the Park Avenue Hospital, was upheld in every count when the Court of Appeals affirmed the order of

the appellate division against the board of regents of the state of New York, the New York *Times* reported on April 21. The action grew out of charges originally brought by the office of the New York State Attorney General alleging that the Body and Mind Foundation, established by Dr. Cowles as a center for the treatment of mental and nervous disorders, had violated the law that prohibits the practice of medicine by a corporation. The board of regents sustained the charges and voted to suspend Dr. Cowles's license for a year. According to the *Times* this decision was unanimously reversed by the appellate division, third department, in Albany, in November 1943; the board of regents then appealed to the Court of Appeals. In affirming the decision of the appellate division upholding Dr. Cowles, the court also ordered payment of costs. The briefs submitted by the attorneys to the court contained testimonials from a large number of persons prominent in many walks of life, the *Times* stated, all of whom described Dr. Cowles as "an outstanding psychiatrist and a benefactor to humanity, who has helped thousands to resume normal lives" (*THE JOURNAL*, May 1, 1943, p. 50; Dec. 4, 1943, p. 918).

Dr. Berg Sets Up Memorial at Mount Sinai.—Dr. Albert A. Berg, consulting surgeon at Mount Sinai Hospital, has given a large fund to the hospital to finance the construction of the Henry W. Berg Research Laboratory Building. The construction of the laboratory building will be started as soon after the war as material and labor become available on a site centrally located among Mount Sinai's existing group of eighteen buildings. Dr. Berg intends the building to honor his brother the late Dr. Henry W. Berg, who was a member of the attending staff of the hospital for forty years until his death in 1938. Dr. Albert Berg has been identified with the hospital since his appointment there as an intern in 1894. The two brothers were lifelong associates, not only at the hospital but also in their private interests. They maintained joint offices. They shared a hobby of collecting rare books and manuscripts and accumulated a collection which Dr. Berg in 1940 and 1941 presented to the New York Public Library and which is now housed in special rooms there. The new laboratory building will provide accommodations for research in bacteriology, pathology, physiology, chemistry, gastroenterology, cardiology, hematology, endocrinology, metabolism, allergy, biophysics and other branches of research. The hospital's electron microscope, its ultracentrifuge and other specialized research apparatus will be housed in the new structure.

SOUTH CAROLINA

State Medical Election.—Dr. William Thomas Brockman, Greenville, was named president-elect of the South Carolina Medical Association April 11 during its annual meeting and Dr. William R. Wallace, Chester, was installed as president. Other officers include Dr. George E. Thompson, Spartanburg, vice president, and Dr. Julian P. Price, Florence, secretary.

Dr. Hayne Resigns as State Health Officer.—Dr. James A. Hayne, state health officer for thirty-three years, resigned April 11 during the annual meeting of the South Carolina Medical Association and was immediately recommended for appointment to a newly created post of director of health education. Dr. Benjamin F. Wyman, Columbia, director of rural health work in the state board of health, was recommended by the council of the state association to succeed Dr. Hayne as health officer. Dr. Hayne graduated at the Medical College of the State of South Carolina, Charleston, in 1895. On the day that he completed thirty-three years as state health officer and secretary of the board of health, newspapers reported that he transferred to his new position as director of health education.

WASHINGTON

Geriatric Hospital.—What is said to be the first geriatric institution in the United States is almost completed at Western State Hospital, Fort Steilacoom, according to *Northwest Medicine*. When finished the unit will care for about 1,000 old persons. The south wing, now under construction, will have accommodations for about 500 men and women and will cost about \$305,000. The building is of one story construction without stairs or ramps.

WEST VIRGINIA

Dr. Lawless in Charge of University Health Service.—Dr. John J. Lawless, White Sulphur Springs, has been appointed director of university health service and associate professor of medicine and surgery at the West Virginia University School of Medicine, Morgantown. He succeeds Dr. Jerome E. Andes, who had held the position since September 1943 and resigned because of ill health.

State Medical Meeting.—The seventy-seventh annual meeting of the West Virginia State Medical Association will be held at the Hotel Windsor, Wheeling, May 15-16, under the presidency of Dr. Robert J. Reed Jr., Wheeling. Lieut. Comdr. John O. Rankin (MC) will deliver the oration on surgery Monday on "Surgical Experiences in a Continental U. S. Naval Hospital" and Dr. Andrew E. Amick, Charleston, the oration on medicine Tuesday on "Growing Children—Our Responsibility." Included among the speakers on the program will be:

Dr. Samuel A. Cosgrove, Jersey City, N. J., The Medical and Surgical Complications of Pregnancy.
Dr. Walter C. Alvarez, Rochester, Minn., What Is the Matter with the Patient Who Is Always Tired?
Major Ralph H. Kunstadter, M. C., The Diagnosis and Management of Malaria.
Dr. Charles A. Doan, Columbus, Ohio, The Differential Diagnosis and Treatment of Diseases Involving the Spleen.
Dr. William W. Waddell Jr., Charlottesville, Va., Recent Advances in the Treatment of Purulent Meningitis.
Dr. Richard B. Cattell, Boston, Surgery of the Upper Gastrointestinal Tract.
Dr. Francis H. Adler, Philadelphia, The Role of Exophthalmos in the Differential Diagnosis and Treatment of Graves' Disease.
Lieut. Col. John W. R. Norton, M. C., Observations in Disease Control Methods Among Overseas Troops.
Capt. Alphonse McMahon (MC), Medicine in the South Pacific.

Dr. Reed will deliver his presidential address at the past presidents' dinner Monday evening on "Beyond the Blue Horizon." At a victory dinner meeting the following night Capt. William M. Sheppe (MC) will be the toastmaster, and speakers will be Colonel Norton on "How It Feels to Be Torpedoed at 2 A. M. in December" and Captain McMahon, "Native Customs of the South Pacific." The woman's auxiliary to the state medical association will convene at the McLure Hotel, with Captain Sheppe delivering the principal address, on "Recent Advances in Medical Care of Naval Personnel."

GENERAL

Examinations of Specialty Boards.—The American Board of Otolaryngology will conduct an examination at the Palmer House, Chicago, October 4-7. Dr. Dean M. Lierle, University Hospitals, Iowa City, is secretary of the board.—The next examination of the American Board of Neurological Surgery will be held on June 5 at the Illinois Neuropsychiatric Institute, 912 South Wood Street, Chicago. Dr. Paul C. Bucy, Chicago, is secretary of the board.

Special Society Elections.—Dr. Frank E. Adair, New York, was elected president of the American Society for the Control of Cancer at its annual meeting in New York, March 11. Dr. Edwin P. Lehman, Charlottesville, director of the Virginia Cancer Foundation, was chosen vice president and Dr. Eugene P. Pendergrass, professor of radiology at the University of Pennsylvania School of Medicine, Philadelphia, secretary.—At a meeting of the American Association of Pathologists and Bacteriologists, April 8, it was voted to hold the next annual scientific session at the University of Chicago, May 4-5, 1945. "Infectious Granulomas, Exclusive of Tuberculosis and Syphilis" will be the theme of the meeting, with Dr. Wiley D. Forbus, professor of pathology, Duke University School of Medicine, Durham, N. C., as referee. The officers of the association will continue in office until the next meeting: Dr. Paul R. Cannon, Chicago, president, Dr. Forbus, vice president, Dr. Howard T. Karsner, Cleveland, secretary, and Dr. Alan R. Moritz, Boston, treasurer.

Society for Clinical Investigation.—The thirty-sixth annual meeting of the American Society for Clinical Investigation will be held at the Claridge Hotel, Atlantic City, N. J., May 8, under the presidency of Dr. Fuller Albright, Boston. Included among the speakers will be:

Drs. David D. Rutstein, Karl Jefferson Thomson, Daniel M. Tolmach, William H. Walker and Robert J. Floody, Albany, N. Y., Plasma Volume and "Extravascular Thiocyanate Space" in Pneumococcus Pneumonia.
Drs. Lewis Thomas, George S. Mirick, Edward C. Curnen Jr., James E. Ziegler Jr. and Frank L. Horsfall Jr., New York, Nonhemolytic Streptococci in Primary Atypical Pneumonia.
Drs. Douglas S. Riggs, Alexander W. Winkler and Evelyn B. Man, Ph.D., New Haven, Conn., Serum Iodine and Basal Metabolism of Myxedematous and Euthyroid Subjects Treated with Desiccated Thyroid.
Dr. Arild E. Hansen, Galveston, Texas, Influence of Fat in Diet on Cholesterol Ester Fatty Acids.
Dr. Caroline C. B. Thomas, Hypertension from Section of Moderator Nerve.
Dr. Ralph Wayne Rundles, Ann Arbor, Mich., Orthostatic Hypotension and Orthostatic Tachycardia in Patients with Diabetic Neuropathy.
Dr. Edwin B. Astwood, Boston, Control of Hyperthyroidism with Thiouracil and Continued Remission After Therapy.

Falls Leading Cause of Fatal Accidents.—Falls are the leading cause of fatal accidents in the United States, according to the Metropolitan Life Insurance Company. About one half occur on stairs and floors. In 1943 falls were responsible for

more than 25,000 deaths, 2,000 more than the number killed as a result of motor vehicle accidents. While falls are of common occurrence among persons of all ages, more than two thirds of the deaths from falls happen among persons 65 years of age or over. It was stated that under the age of 5 fatal falls out of beds and windows and from balconies and porches are not uncommon. In the adventurous school ages 5 to 14 among boys, diving accidents and falls from trees and roofs took many lives. At the ages 15 to 64 the fatal falls among males reflect their exposure to industrial hazards, for in this group there is a high percentage of deaths by falls from ladders, scaffolds and roofs, and, generally, falls in building construction. The highest proportion of deaths in this group, however, 26.2 and 32.5 among males and females respectively, are caused by falls on stairs and steps. Among females the proportion of deaths from falls on floors is almost as large as for falls on stairs. Falls on the street cause 12.7 per cent and 9.1 per cent of the deaths of males and females respectively. At the oldest ages also the greatest number of fatal falls among males occur on stairs, but among females, falls on floors account for the largest proportion, it was stated.

Physicians Asked to Watch for Impostor with Ulcer.—The Federal Bureau of Investigation is asking physicians to be on the lookout for one Jack K. Meredith, who is known to have used more than a hundred aliases while he obtained his livelihood through various schemes of fraud. At the present



JACK K. MEREDITH, Wanted by Federal Authorities

time Meredith has a varicose ulcer on his right ankle and must have medical attention. Since his release from a penitentiary in 1942, Meredith is said to have secured thousand of dollars monthly from individuals throughout the United States. He is wanted by the Federal Bureau of Investigation for violation of the National Stolen Property Act, National Motor Vehicle Theft Act and Federal Impersonation Statute. The description of Meredith, who is armed and dangerous, is reported as follows:

Age	51 years
Height	5 feet, 8½ inches
Weight	155 pounds
Eyes	hazel
Hair	brown, turning gray
Complexion	medium ruddy, face wrinkled
Build	slender, slightly stooped
Race	white
Nationality	American
Occupation	fraudulent check passer, confidence man
Scars and marks	scar in center of back, ruptured vein inside right knee, freckled back and shoulders, scars on right shin, appendectomy scar, varicose ulcer right ankle, limps right leg
Peculiarities	quiet, convincing talker, friendly, dresses well.

Physicians are asked to notify the nearest field division of the Federal Bureau of Investigation if Meredith calls for treatment.

Centennial Meeting of Psychiatrists.—The one hundredth annual meeting of the American Psychiatric Association will be held at the Bellevue-Stratford Hotel, Philadelphia, May 15-18, under the presidency of Dr. Edward A. Strecker, Philadelphia. A special feature of the meeting will be a historical

exhibit showing the progress of psychiatry, particularly as related to the growth and development of the association. Among the speakers on the centenary day program Wednesday will be:

Major Gen. George B. Chisholm, R. C. A. M. C., Psychological Adjustment of Soldiers to the Army and to Civilian Life.
Thomas North Whitehead, M.A., Cambridge, Mass., Group Attitudes and Their Effects on Communication.
Dr. Alan Gregg, New York, A Critique of Psychiatry.

Included among other speakers on the program will be:

Dr. John H. Taylor Jr., Trenton, N. J., Schizophrenics Treated with Shock Therapy.
Drs. Leonard E. Himler and Theophile Raphael, Ann Arbor, Mich., A Follow-Up Study on 70 Former College Students Subject to Convulsive Disorders.
Capt. Ephraim Roseman, M. C., The Epileptic in the Army.
Drs. Gustav Bychowski and Frank J. Curran, New York, Current Problems in Medicolegal Testimony.
Howard Hanson, Mus. Doc., Rochester, N. Y., Some Objective Studies of Rhythm in Music.
Dr. Leonard Rosenzweig, North Warren, Pa., and Laura Durbin, A.B., Erie, Pa., Fingerpainting as an Investigative Approach to Therapeutic Techniques.

Three section meetings will be devoted to "Psychiatry and the U. S. Army," "Psychiatry and the U. S. Public Health Service" and "Psychiatry and the U. S. Navy." A number of sessions will be held jointly with a number of groups interested in this specialty.

Goals for Children and Youth as We Move from War to Peace.—The Children's Bureau Commission on Children in Wartime at a meeting in Washington, March 17-18, adopted a series of goals for children as an extension of the Children's Charter in Wartime adopted two years ago. The Children's Bureau points out that over five and one-half million mothers of children under the age of 14 are employed in war plants and service industries. Nearly three million boys and girls under the age of 18 years are employed, having left school or carry combined programs of school and work. As they reach 18 these boys are subject to induction into the armed forces. Pointing out that concentrated programs have resulted in children receiving a higher level of nutrition, the addition of hospitals, schools and recreation centers to communities, decrease in maternal mortality and infant mortality rates, the Children's Bureau states that the children and youth are not receiving the care, protection and educational opportunity that their own and the nation's welfare and future require. The Children's Bureau states that the shortages of doctors, nurses and health and hospital facilities are affecting the quantity and quality of health protection and medical care, especially in military and war production areas and in many rural areas in which shortages existed before the war, constituting a serious threat to the well-being of children and the future strength of the nation. The principal goals, as outlined, include:

Extension of health service and medical care to assure access to adequate care for all mothers and children.

Regulating child labor and safeguarding youth in wartime employment; planning now for young workers demobilized from industry and for youth leaving school in the demobilization period; developing policies for the postwar period which will assure protection and educational and employment opportunity to youth.

Development of community recreation and leisure time services for young people, with participation in planning and management by youths themselves.

Safeguarding family life in wartime, during demobilization and in the postwar period.

Development of state and local public child welfare programs and the work of private agencies to assure social services to every child whose home conditions or individual difficulties require special attention.

Review and revision of legislative safeguards and standards relating to children in preparation for the 1945 sessions of the legislatures in the light of these goals for children.

Sharing of the public responsibility for the health, education and welfare of children by federal, state and local authorities, with recognition of the primary responsibility of the state and local units, the importance of providing federal funds for local services through grants-in-aid to appropriate state agencies, and with the removal of residence restrictions in the selection of personnel for such programs.

Provision for the training of professional personnel required for services for children and youths and for the preparation of volunteers to assist in rendering such services.

Increased opportunities for youths to share in the planning and development of programs—local, state and national and international—for the benefit of youths.

Education of parents, youths and all citizens concerning the importance of providing full security and opportunity for children for the sake of their own happiness and well-being and for the future of the nation.

The Children's Bureau Commission on Children in Wartime was appointed by the chief of the Children's Bureau and held its first meeting March 16-18, 1942. In February the commission was reappointed with certain changes in membership to place it in a position to consider the problems that will affect children and youths during 1944 and 1945.

LATIN AMERICA

Health Activities in Latin America.—*Report on West Indian Conference.*—According to a recent report quoting Dr. Pablo Morales Otero, San Juan, of the School of Tropical Medicine of Puerto Rico and a member of the first sectional committee to be established by the Caribbean Research Council, which functions under the auspices of the Anglo-American Caribbean Commission, various resolutions on venereal diseases, public health and quarantine which are similar to those already in effect in Puerto Rico were adopted at a West Indian Conference recently in Barbados. It was pointed out that some advance in the control of yellow fever and a decrease of tuberculosis had been made in Puerto Rico, and credit for the decrease in venereal disease is largely given to the Institute of Social Hygiene and the Institute of Public Health. A group was officially appointed at the Barbados meeting to confer at least once a year on venereal diseases, and subcommittees were named by the Caribbean Research Council to consider various phases of public health, medicine, building and engineering research, industries and social science.

Society News.—The first Pan American Congress on Mental Hygiene will be held in Rio de Janeiro and Buenos Aires, the dates to be announced later.

Prize for Work on Poliomyelitis.—The Rodolfo Fitte Foundation announced a prize of \$2,500 to the author of the best work on poliomyelitis in Argentina. The competitive essays should be sent to the foundation, Avenida Quintana 39, Buenos Aires, before December 1.

Physician Honored.—Dr. Rafael Angel Calderón Guardia, San Jose, president of Costa Rica and a graduate of the University of Brussels in 1927, was recently named as the first recipient of the Cross of the Americas, the medal of honor awarded by the Inter-American Institute. The medal is conferred on those who have distinguished themselves in promoting the unity of the Americas, according to the *Bulletin* of the institute.

Bolivian Minister Visits United States.—An announcement from La Paz indicated that the Bolivian minister for public health and labor, Mr. Victor Andrade, is visiting the United States to gain first hand information about social and health questions and to seek further cooperation from health authorities, if possible, for special problems in his own country. Mr. Andrade is said to be particularly interested in modern dwelling conditions for workers in large industrial areas and in conditions for protecting the worker's health.

CANADA

Grants to Medical Men Returning from Military Service.—The provincial government of Ontario in cooperation with the Rockefeller Foundation plans to make grants to medical men returning from military service to aid postgraduate training of much needed medical personnel for public health services in Ontario. It was stated that the provincial government, in cooperation with the Rockefeller Foundation, will pay \$200 a month for married men who wish to take advantage of this postgraduate education and \$145 a month for single men.

Cancer Foundation Created.—The establishment of a cancer control foundation in Ontario for diagnosis and treatment and research in cancer has been announced. A legislative appropriation of \$500,000 will assist in the support of the foundation, which has been empowered to acquire lands and buildings and to employ a director, officers and the necessary clerical staff. Lieut. Col. A. L. Bishop, Toronto, is chairman of the foundation, other members of which include Arthur Ford, London, Dr. George S. Young, Toronto, Malcolm Cochran, Port Arthur, Robert Brown, Toronto, R. E. Stratford, Sarnia, and Kenneth Emerson Deacon, Unionville. Dr. Reginald P. Vivian, Port Hope, health minister of Ontario, stated that the foundation is being set up in addition to an existing commission for the investigation of cancer remedies. A provision has been made in the budget for continuing assistance by way of grants to existing institutes of radiotherapy and clinics now in operation. An announcement from the Canada Wartime Information Board stated that 4,987 persons died of cancer in Ontario in the past year, constituting 12.8 per cent of all deaths in the province.

Deaths in Other Countries

Dr. William Lyon Mackenzie King, Toronto, Ont., Canada, formerly a member of the Minnesota State Medical Association, was lost at sea when the British destroyer *St. Croix* was torpedoed recently in the North Atlantic. He had received the degree of master of science in surgery at the University of Minnesota in June 1941.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 1, 1944.

Malnutrition in Occupied Europe

In the House of Lords a debate took place recently on food conditions in enemy occupied Europe. The horror of the situation as the result of German rapacity and enslavement for war work of a large proportion of the workers is only too well known, but an exact, scientific estimate of prevailing conditions was given by Lord Horder. He thought that in the past some rather wild statements had been made about famine and hunger. Prolonged malnutrition was a much more serious medical problem than famine, he said, because it led to diseases of low resistance, the chief of which was tuberculosis, and to conditions which may take several generations to remedy. The clinical examination of refugees who reached Lisbon in August showed evidence of prolonged malnutrition. Last September the basic daily ration in Belgium was about 1,260 calories, whereas authorities agree that 2,480 is the lowest amount required for health. In Belgium, children up to 6 years got supplementary rations, Lord Horder said, but after that age these were withdrawn. Adolescents from 14 to 21 were suffering greatly from want of proper nourishment, it was disclosed. Investigations in Belgium also showed that many adults had lost 20 to 30 pounds (9 to 13.6 Kg.). Pregnant women showed a drop of 80 per cent in normal weight gain, and infants at birth showed a drop in weight of 2½ pounds (1 Kg.). In Belgium too the number of people receiving a supplementary ration because of tuberculosis rose sharply from 70,000 in December 1941 to 110,000 in February 1943. Lord Horder joined in an appeal to the government, made previously by the Archbishop of Canterbury, to do something to alleviate these conditions.

The Earl of Selborne, minister of economic warfare, said that the question was not simply that our blockade was causing evil. It was, he said, the choice of a lesser evil. If we had not applied the blockade, Germany would have gained additional manpower for her army and munitions factories. We had endeavored to mitigate the impact of our blockade on our unfortunate allies in every way possible, the minister said. We had facilitated the import of food through neutral countries within the blockade area, such as the dispatch of Portuguese fish to distressed areas. We had taken vitamin D off the contraband list, because this would not seriously assist the enemy. He produced figures officially published in Belgium, which he had no reason to think were faked, showing that the death rate was little higher than before the war. If we supplied food, the Germans, by reducing the basic ration, could nullify the supplementary ration so furnished. The government, he said, would not do anything that would prolong the war.

The Radon Treatment of Glioma of the Retina

Glioma of the retina arises in the first few years of life and shows a strong hereditary tendency. If not destroyed, it quickly proves fatal by extension along the optic nerve to the brain. Before 1929 the treatment recommended was excision of the eye, a dreadful expedient when both eyes were affected, as occurred in about one fourth of the cases. Not unnaturally many parents preferred that their children should die rather than undergo excision of both eyes. At last, a successful alternative appears to have been found in radon treatment. In *St. Bartholomew's Hospital Journal* Mr. Seymour Philips and Mr.

A. C. L. Houlton report the first case in which the opportunity to use radon seeds in a bilateral case occurred.

A boy of 5 attended Moorfields Hospital and was seen by Mr. Rupert Scott. He had growths in both eyes. His mother was not unfamiliar with the condition, for an elder brother of the patient had had both eyes removed for the same disease and had died six weeks later. She therefore refused to consent to double excision. One eye, extensively destroyed by the growth, was removed, and the child was transferred to St. Bartholomew's Hospital, where Foster Moore inserted a 3 millicurie radon seed into the center of the tumor in the remaining eye on Nov. 15, 1929. The growth became chalky white and broke up into pieces, finally disappearing. But on further examination it was thought that there was some sign of recurrence, and further seeds were attached to the sclera. In the light of further experience it seemed that what was thought to be recurrence of the growth was reparative fibrous tissue. The eye therefore received a larger dose of radon than was necessary. The skill with which the radon was applied is indicated by the fact that at the end of the treatment the boy had vision of 6/12 in spite of the large dose of radon, which had caused some change at the macula. The boy is now a healthy lad, able to earn his living by selling newspapers, though his vision has deteriorated owing to an irradiational cataract, which he prefers not to have removed.

Some other successful cases subsequently have been reported in this country, and it has been established that retinal gliomas are highly radiosensitive and can be destroyed by radon seeds. The normal tissues of the eye are also destroyed, but to a lesser extent, and by accurate localization a dose of radon can be applied which will destroy the tumor and leave a useful eye. Philips and Houlton also report another case. A boy aged 8 months was brought to the Oxford Eye Hospital in July 1940 with bilateral glioma of the retina. The left eye, being half full of growth, was excised. In the right eye was a globular tumor measuring 6 disk diameters. In the feeling that there had been a tendency to overirradiate these growths, a minimal dose 2.5 millicurie radon seed was inserted into the center of the growth on July 25. It was removed on August 8 when the tumor was of the same size but whiter. The growth fragmented and became much smaller. When discharged on September 9, the boy was well and the eye white. Central vision seemed to be good. At the present time there is a mulberry shaped knob at the site of the tumor, which has grown smaller over the years. At the age of 4 years the child is bright and intelligent and sees well with his one eye. His vision is 6/12.

Homeopath's Attempt to Avoid National Service

In this country the regard for freedom of the individual is carried so far that one is not compelled to enter the army if one has a conscientious objection to taking part in war. But, as an alternative, one can be compelled to undertake, by direction of the government, work of national importance. An unusual case has occurred in which a homeopath endeavored to avoid national service on the ground that he had a conscientious objection to giving allopathic treatment. He was directed by a national service officer to perform services as junior medical officer at a hospital. He failed to comply and was prosecuted. At the trial he made the plea that he would be required to give allopathic treatment, to which he had a conscientious objection. He was convicted of a breach of the regulations and fined \$25 and \$50 costs. He appealed to a higher court, stating that he had expressed his readiness to perform medical services on homeopathic lines and also that he was incapable of performing the services to which he was directed.

In giving judgment the judge said that, while he had every sympathy for any one called on to do anything in direct conflict

with his beliefs, the decision of the magistrate was right. The court had to decide whether or not the officer's decision was lawfully given and approached the case on the basis that the doctor was a fair minded person. It was for the officer to make up his mind whether a person called on to perform certain duties was capable of performing them. In the court's opinion the direction complained of was properly given and the doctor was a person capable of performing the duties required of him. His appeal was therefore dismissed. It may be added that by a war regulation any national service officer may direct any person to perform specified services which he considers the person capable of performing. There is no appeal against this direction, and conscientious objection is recognized only in connection with services in the armed forces.

BRAZIL

(From Our Regular Correspondent)

March 14, 1944.

The Campaign Against Leprosy

Leprosy is an important health problem in Brazil because of the large number of cases and the slightly increasing trend of the disease. A general picture of the situation of leprosy in this country has been given in a previous letter (THE JOURNAL, April 4, 1942). Dr. Ernani Agricola, director of the Division of Leprosy of the National Department of Health, estimates that the present number of leprosy persons in Brazil is about 45,000, or 100 per hundred thousand of population, which represents an incidence comparable to that in Russia. The division is now conducting a careful survey. At present a third of these persons with leprosy are interned in eighteen leprosariums scattered all over the country, another third is under the regimen of home visiting by doctors or nurses, representing a wide range of variable control, and the last third is unknown to the health authorities. Nineteen doctors, specialized in the diagnosis of the disease and equipped with all that is necessary for this exacting work, are covering the country, state by state, to take this special and important census. These physicians have had to overcome many handicaps, among them the long distances to be covered, the difficulty of transportation created by the war and the prejudice in relation to leprosy. During the past eight months they have examined 3,228 persons; they have found 331 new cases of leprosy and 70 suspected cases. The work has been completed in the state of Rio de Janeiro (adjoining the Federal District, in which the city of Rio de Janeiro, the capital of the country, is located). A total of 1,017 patients affected with leprosy is now known to the health authorities in this state; this represents 53.5 per hundred thousand of population. According to most authors in the field of leprology, the state of Rio de Janeiro is an active focus of the disease, since a large majority of cases are of the contagious clinical form—the lepromatous.

The Division of Leprosy last year opened a competition for monographs on special subjects in the field of diagnosis, treatment and control of leprosy. These monographs are to be distributed to the physicians of the country with the idea of enlarging the knowledge of general practitioners and increasing the possibilities of diagnosis by them. Prizes have been awarded for the following monographs received in 1943: "History of Leprosy in Brazil, and the Geographic Distribution of the Disease," by Dr. Flavio Maurano, "Etiology and Pathology of Leprosy," by Drs. Luiz M. Bechelli, Flavio Maurano and Abrahão Rothberg, and "Epidemiology and Control of Leprosy," by Dr. Nelson S. Campos. For the present year the following two subjects are to be treated by the monographs in the competition: "Organization and Administration of Leprosariums and of Leprosy Clinic" and "Nervous Symptomatology of Leprosy." The competition is open to all the physicians of the country.

Determination of Vitamin C in Brazilian Fruits

After the war began the Fundos Universitários de Pesquisas para a Defesa Nacional (University Funds of Researches for National Defense) was organized in São Paulo. The money collected is used to investigate Brazilian possibilities in various scientific fields. One of these investigations, the results of which were recently published by Drs. Demosthenes Orsini and Otavio de Paula Santos, is concerned with the determination of vitamin C in Brazilian fruits. By means of the photoelectric indophenol method (Bessey, O. A.: *J. Biol. Chem.* **126**:771 [Dec.] 1938), ascorbic acid was determined in twenty-one different fresh fruits. Some of them are typical Brazilian fruits, such as cashew (*Anacardium brasiliense* Rodr.), walha (*Eugenia uvalha*, Camb.), pupunha (*Guilielma speciosa*, Mart.) and jaboticaba (*Myrciaria jaboticaba*, Berg.). For each fruit ten or more determinations were made, but only four samples were run for tamarind. This method also permits detection of the presence of other reducing substances and estimation of corrections for their effects. The enzymic method for the estimation of true vitamin C content (Tauber, Henry, and Kleiner, I. S.: *J. Biol. Chem.* **110**:559 [Aug.] 1935) was also used in order to check the results obtained. To make possible the use of both methods, some modifications were made by the authors. Close agreement was obtained in the two methods except for the two varieties of cashew, red and yellow, which left a certain amount of other reducing substances after the ascorbinase action. The Klett-Summerson photoelectric colorimeter with filter 54 was used. The ascorbic acid content was highest for the two varieties of cashew (120.43 and 168.83 mg. per hundred cubic centimeters), walha (114.65 mg. per hundred cubic centimeters), orange (laranja-lima) and papaya; medium for mangos, banana (banana-maçã) and alligator pear, and lowest for pupunha, peaches, banana (banana-nanica), jaboticaba and plum (ameixa do Pará). Only traces of reducing substances were found for grapes and tamarind.

Production of Penicillin in Brazil

Among the various laboratories in Brazil which have attempted to manufacture penicillin, the most productive have been the Raul Leite Laboratories, where Dr. Raymundo M. Aragão succeeded in producing an active drug that was tried with good results in many desperate and difficult cases. Unfortunately the increasing difficulties created by the war have obliged the Raul Leite Laboratories to stop production of the drug. The federal government has now decided to cooperate in the manufacture of penicillin and has appointed a committee to study the necessary measures to help production. The Oswaldo Cruz Institute also is at present attempting to produce penicillin under experimental conditions.

Marriages

PAUL HENRY RINGER JR., Asheville, N. C., to Miss Norma Newcomb of Eagle Grove, Iowa, at Fort Sam Houston, Texas, March 16.

NORMAN ROBIN GOLDSMITH, Bethesda, Md., to Miss Emphila Margaret Fisher of North Judson, Ind., in Washington, D. C., March 24.

MARCUS L. ADERHOLT JR., Lexington, N. C., to Miss Mary Minor Maclin of Montgomery, W. Va., March 25.

JAMIE P. SCOTT, Ashland, Ky., to Miss Frances Fitzgerald of Danville, Va., in Olive Hill, Ky., March 9.

N. JEROME SCHULMAN, New Rochelle, N. Y., to Miss Doris Jean Guttman in San Francisco, February 28.

LEWIS MARION DAVIS, Donalds, S. C., to Miss Caroline Westmoreland of Spartanburg, March 25.

EDWARD STEPHEN GRADY to Miss Mina Eloise McEmore, both of Smithfield, N. C., March 21.

CHARLES BERNSTEIN, Brooklyn, to Miss Sylvia Hayman of Washington, D. C., March 23.

Deaths

Clarence Benjamin Francisco © Kansas City, Mo.; University of Kansas School of Medicine, Lawrence-Kansas City, 1907; professor of clinical surgery at his alma mater; specialist certified by the American Board of Orthopaedic Surgery, Inc.; member of the Kansas Medical Society and the Clinical Orthopaedic Society; fellow and formerly vice president of the American Academy of Orthopedic Surgeons; fellow of the American College of Surgeons; consulting orthopedic surgeon for the American Expeditionary Forces in France and Scotland during World War I with the rank of lieutenant colonel; colonel in the medical reserve corps of the U. S. Army not on active duty; served as chairman of the orthopedic board of the Kansas Crippled Children's Commission; attending orthopedic surgeon, Children's Mercy Hospital; consulting orthopedic surgeon, Kansas City General Hospital; on the staffs of the University of Kansas Hospitals, Kansas City, Kan., Lawrence Memorial Hospital, Lawrence, and St. Mary's and St. Joseph hospitals; orthopedic consultant, Veterans Administration Facility, Wadsworth, Kan.; to be honored by a memorial started by medical students and faculty of the University of Kansas School of Medicine; died in the University of Kansas Hospitals, Kansas City, Kan., February 23, aged 64, of carcinoma of the pancreas and liver.

Horace James Brown © Reno, Nev.; University of Louisville (Ky.) Medical Department, 1904; member of the House of Delegates of the American Medical Association in 1923, 1929, 1938 and 1941; secretary and secretary-treasurer of the Nevada State Medical Association from 1918 to 1943 with the exception of 1924, when he served as president; formerly a member of the state board of medical examiners; fellow of the American College of Surgeons; member of the Pacific Association of Railway Surgeons; division surgeon, Southern Pacific Company; formerly chief surgeon, Tonopah and Goldfield Railroad; at one time president of the Nevada National Life Insurance Company; veteran of the Spanish-American War; held the rank of major in the army reserve and in the Nevada National Guard; at one time served as surgeon for large coal mining companies; served as a member of the governors board for Nevada of the Gorgas Memorial Institute; member and past president of the Reno Lions Club; on the staffs of Washoe General Hospital and St. Mary's Hospital, where he died March 2, aged 63, of acute dilatation of the heart following an operation for intestinal obstruction.

Carl Koller © New York; Medizinische Fakultät der Universität Wien, Austria, 1882; specialist certified by the American Board of Ophthalmology; member of the American Ophthalmological Society, the Association for Research in Ophthalmology, Inc., American Physiological Society, American Society for Pharmacology and Experimental Therapeutics, Inc.; fellow of the New York Academy of Medicine, honorary member of the Society of Physicians of Vienna, Society of Physicians of Budapest and the Royal Academy of Medicine, Rome, Italy; consulting ophthalmic surgeon to the Mount Sinai and Montefiore hospitals and the Hebrew Orphan Asylum; in 1884 introduced cocaine as a local anesthetic in operations on the eye; in 1922 received a gold medal from the American Ophthalmological Society, in 1929 the Kussmaul medal from the University of Heidelberg, Germany, in 1930 the first annual medal of honor from the New York Academy of Medicine and in 1934 the medal of honor of the American Academy of Ophthalmology and Otolaryngology; surgeon, reserve of Imperial Austrian Army; died March 22, aged 86.

Jacob Carl Krafft © Chicago; Long Island College Hospital, Brooklyn, 1899; clinical professor of pediatrics at the Loyola University School of Medicine; formerly professor of pediatrics at the Chicago Polyclinic; member of the House of Delegates of the American Medical Association, 1916-1917; president of the Illinois State Medical Society, 1925-1926; member of the committee for handicapped children and legislative committee of the Chicago Medical Society; specialist certified by the American Board of Pediatrics, Inc.; fellow of the American Academy of Pediatrics and the American College of Physicians; served as a major in the medical corps of the U. S. Army during World War I; attending pediatrician to the Cook County Hospital from 1902 to 1904 and later consulting pediatrician; consulting pediatrician at the City of Chicago Municipal Tuberculosis Sanitarium from 1905 to 1909; attending pediatrician, Norwegian-American, Garfield Park and Walther Memorial hospitals; died at his home in Oak Park, Ill., March 28, aged 69, of coronary thrombosis.

James Isaac Russell © New York; Columbia University College of Physicians and Surgeons, New York, 1901; instruc-

tor of clinical surgery at his alma mater from 1909 to 1917; member of the founders group of the American Board of Surgery; fellow of the American College of Surgeons and the New York Academy of Medicine; member of the New York Surgical Society; held the rank of major in the medical corps of the U. S. Army during World War I, serving in France with the Roosevelt Hospital Unit; for many years associated with the Roosevelt Hospital, where from 1936 to 1942 he had been director of the department of surgery; served as attending surgeon to the New York Lying-In Hospital, a consulting surgeon to the Home for Incurables and to the John P. Mather Memorial Hospital; formerly a consultant to the Lincoln Hospital; died February 14, aged 68.

William Whitehead Gilfillan, New York; College of Physicians and Surgeons, New York, 1890; member of the Medical Society of the State of New York; fellow of the New York Academy of Medicine and the American College of Surgeons; formerly instructor on eye diseases at the New York Post-Graduate Medical School and Hospital; consulting oculist, Sailors' Snug Harbor Hospital, Staten Island; consulting ophthalmologist, New York House of Refuge; consulting ophthalmic surgeon, New York City Hospital and St. Vincent's Hospital, Staten Island; formerly on the staffs of the New York City Children's Hospital and School, Randall's Island, the French Hospital and the Manhattan Eye, Ear and Throat Hospital; died February 10, aged 75.

Benjamin Franklin Stahl © Haverford, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1887; Philadelphia College of Pharmacy and Science, 1884; past president of the Philadelphia County Medical Society; formerly instructor of physical diagnosis, associate in medicine and lecturer on dietetics of the sick at his alma mater; served as clinical professor of medicine at the Woman's Medical College of Pennsylvania; for thirty-seven years associated with St. Agnes' Hospital, where for eight years he had been medical director; in 1939 received the award of merit from the University of Pennsylvania for his services; for twelve years trustee of the Philadelphia College of Pharmacy and Science; died in the Bryn Mawr Hospital, Bryn Mawr, March 20, aged 80.

Frederick Wheeler Palmer © Colonel, U. S. Army, retired, Oklahoma City; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1894; Army Medical School, 1904; entered the medical corps of the U. S. Army in July 1903 as an assistant surgeon; rose through the various grades to the rank of lieutenant colonel on May 15, 1917; retired from active duty on Sept. 3, 1920 for disability incident to the service; retired with the rank of colonel under the Act of June 21, 1930; veteran of the Spanish-American and World wars; died in the Army and Navy General Hospital, Hot Springs National Park, Ark., February 16, aged 71, of carcinomatosis.

Willis Walley © Jackson, Miss.; Atlanta College of Physicians and Surgeons, 1902; president of the Mississippi State Medical Association, 1917-1918; health officer of Perry County, 1913-1914; served as state sanitary inspector; superintendent of the Mississippi State Charity Hospital from 1918 to 1922 and from 1928 to 1932; medical director of the Dr. Willis Walley Hospital, which he founded; district surgeon for the Illinois Central Railroad and consultant surgeon of the Gulf, Mobile and Ohio Railroad; died April 9, aged 66, of cerebral hemorrhage.

Michael Albert Albl © Cleveland; Western Reserve University Medical Department, Cleveland, 1892; also a pharmacist; an associate of the American College of Physicians; member of the Academy of Medicine of Cleveland, Cleveland Medical Library Association and the Cleveland Clinical Club; on the staff of St. Alexis Hospital, where he died February 19, aged 74, of pneumonia.

Hiram S. Argue, Tacoma, Wash.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1905; member of the Washington State Medical Association; fellow of the American College of Surgeons; first president of the Tacoma Urological Society; served in France during World War I; attending specialist in urology for the U. S. Public Health Service; on the staff of the Northern Pacific Beneficial Hospital; died in the Virginia Mason Hospital, Seattle, February 5, aged 64, of bronchiogenic carcinoma.

Frederick Nelson Baeder, Nutley, N. J.; Duke University School of Medicine, Durham, N. C., 1940; diplomate of the National Board of Medical Examiners; died February 27, aged 29, of rheumatic heart disease.

Clement Wood Bales, Seattle; University of Oregon Medical School, Portland, 1900; died February 10, aged 75, of cerebral hemorrhage.

Daniel Thomas Birtwell, Washington, D. C.; Columbian University Medical Department, Washington, 1900; member of the Medical Society of the District of Columbia; died in the Central Dispensary and Emergency Hospital February 4, aged 69, of congestive heart disease.

Oscar Hermann Bleicher, Andover, Mass.; College of Physicians and Surgeons, Boston, 1937; member of the American Psychiatric Association; died in a Boston hotel January 28, aged 37, of an overdose of morphine sulfate and nitroglycerin, self administered.

George Henry Boskowitz ☉ San Francisco; College of Physicians and Surgeons of San Francisco, 1899; served overseas as a captain in the medical corps of the U. S. Army during World War I; on the staff of St. Francis Hospital, where he died February 28, aged 66, of right renal calculus.

Guy T. Boyd, Fond du Lac, Wis.; Northwestern University Medical School, Chicago, 1898; died January 29, aged 72, of infarct of the heart, coronary thrombosis, mitral stenosis and arteriosclerosis.

Jefferson C. Brock, Carrollton, Ga.; Vanderbilt University School of Medicine, Nashville, Tenn., 1884; died February 17, aged 86, of senility.

Raymond Andrew Budney, Ray Brook, N. Y.; Western Reserve University School of Medicine, Cleveland, 1939; died in the New York State Hospital February 25, aged 31, of pulmonary tuberculosis.

Charles Frederick Clayton, Knoxville, Tenn.; University of Louisville School of Medicine, Louisville, Ky., 1910; member of the Tennessee State Medical Association; on the staffs of St. Mary's Memorial, Fort Sanders and Knoxville General hospitals; died February 11, aged 58, of general carcinomatosis.

Walter Herbert Cobbs, Rockymount, Va.; Medical College of Virginia, Richmond, 1908; died in a Roanoke hospital February 5, aged 62, of cerebral hemorrhage.

Frederick G. Crittenden, Bradford, Pa.; University of Buffalo School of Medicine, 1897; died February 11.

William Lockwood T. Goodison, Larimore, N. D.; Jefferson Medical College of Philadelphia, 1909; also a lawyer; died in Grand Forks January 13, aged 71, of heart disease.

John Walter Greenwood, East Waterford, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1907; member of the Medical Society of the State of Pennsylvania; died February 7, aged 65, of heart disease.

Corwin Thomas Hill ☉ Akron, Ohio; Western Reserve University Medical Department, Cleveland, 1898; past president and vice president of the Summit County Medical Society; at one time member of the city council; on the staffs of the City and St. Thomas hospitals; a founder and member of the staff of Peoples Hospital; died January 1, aged 74.

Raymond Kenneth Hoover, Haddam, Kan.; University of Nebraska College of Medicine, Omaha, 1921; served during World War I; assistant physician from March 1, 1923 to Aug. 11, 1923 at the State Sanatorium for Tuberculosis, Norton; died February 12, aged 50, of bullet wounds.

Woodburn Johnson Hudson ☉ Pleasantville, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1910; member of the American College of Chest Physicians; served during World War I; for many years medical director of the Atlantic County Hospital for Tuberculous Diseases (Pine Rest Sanitarium), Northfield; on the staff of the Atlantic City Hospital, Atlantic City; died in the Hahnemann Hospital, Philadelphia, January 18, aged 57, of cerebral hemorrhage.

Harry Hyzer, Baltimore; Hahnemann Medical College and Hospital of Philadelphia, 1906; died January 10, aged 58, of lobar pneumonia.

James L. Jefferies ☉ Spartanburg, S. C.; University of the City of New York Medical Department, New York, 1889; an Affiliate Fellow of the American Medical Association; on the staff of the Spartanburg General Hospital; died February 9, aged 77, of coronary occlusion.

Richard Irving King, Los Angeles; Bennett Medical College, Chicago, 1909; died January 18, aged 73, of myocarditis.

Walter Eugene Knox ☉ McCook, Neb.; Medical Department of Tulane University of Louisiana, New Orleans, 1909; formerly surgeon and superintendent of the Norcatur Hospital, Norcatur, Kan.; on the staff of St. Catherine of Siena Hospital; died February 12, aged 59, of coronary thrombosis.

Michael Peter Mahoney ☉ Providence, R. I.; Harvard Medical School, Boston, 1891; for many years on the staff of the Rhode Island Hospital; died in the Jane Brown Memorial Hospital January 21, aged 76, of pneumonia.

Charles Fletcher Maxwell, Seattle; Western Reserve University Medical Department, Cleveland, 1897; died in Fort Steilacoom February 16, aged 73, of hypostatic pneumonia.

Daniel Bernard McCartie, Newark, N. J.; Bellevue Hospital Medical College, New York, 1891; died March 4, aged 72.

John Hamlett Merritt ☉ Woodsdale, N. C.; University of North Carolina School of Medicine, 1906; member of the Person County Board of Health and the board of the Bethel Hill High School; on the staffs of the Community Hospital, Roxboro, and the Watts Hospital, Durham; a director of the Peoples Bank, Roxboro; died February 27, aged 62, of coronary thrombosis with acute dilatation.

Harry Benjamin Neagle, Providence, R. I.; Johns Hopkins University School of Medicine, Baltimore, 1903; formerly epidemiologist, state health department; at one time professor of preventive medicine at the University of Georgia Medical Department, Augusta; served as a health officer in Jackson, Mich., Lewis County, W. Va., and Madera, Calif.; died April 10, aged 66, of cerebral hemorrhage, cerebral thrombosis and arteriosclerotic heart disease.

Erwin Joseph O'Brien ☉ Green Bay, Wis.; Marquette University School of Medicine, Milwaukee, 1928; secretary and treasurer of the Brown-Kewaunee-Door Counties Medical Society; on the staffs of the Mercy Hospital, Oshkosh, St. Mary's Hospital and St. Vincent's Hospital, where he died February 8, aged 40, of fracture of the vertebrae and concussion of the spinal cord.

Timothy W. O'Donovan, Milwaukee; Milwaukee Medical College, 1907; member of the State Medical Society of Wisconsin; on the staff of St. Mary's Hospital; died February 13, aged 60, of myocarditis.

Benson Joseph O'Grady ☉ Hoboken, N. J.; Yale University School of Medicine, New Haven, 1924; served during World War I; school physician; on the staff of St. Mary's Hospital; died February 11, aged 46, of cerebral hemorrhage.

Louis Paparelli, San Antonio, Texas; Independent Medical College, Chicago, 1898; formerly Italian consul at Mexico City; died in the Santa Rosa Hospital February 21, aged 78, of coronary thrombosis.

Harleigh Stephen Peacock ☉ Gasport, N. Y.; University of Buffalo School of Medicine, 1926; formerly on the staff of Our Lady of Victory Hospital, Lackawanna, January 20, aged 43, of coronary thrombosis, ventricular fibrillation and pleuritic effusion.

Clarence Gilbert Pool, Dixon, Ill.; Northwestern University Medical School, Chicago, 1910; member of the Illinois State Medical Society; past president of the Lee County Medical Society; at one time director of the athletic department and professor of hygiene at the Louisiana State Normal College, Natchitoches, La.; served as mayor of Compton; owner of the Compton Hospital, Compton; died in the Dixon Public Hospital February 21, aged 59, of coronary thrombosis.

Willis S. Pritchett, Evansville, Ind.; Louisville (Ky.) Medical College, 1887; entered the U. S. Marine medical service in 1893; secretary of the county health board from 1899 to 1907; for seventeen years on the staff of St. Mary's Hospital and for five years on the staff of the Protestant Deaconess Hospital; died February 16, aged 84, of carcinoma.

John Ray Pryor, Mayfield, Ky.; University of Louisville School of Medicine, 1912; member of the Kentucky State Medical Association; served in France during World War I; formerly county health officer; served as city health officer; until recently a director of the Merit Clothing Company; treasurer of the Mayfield Hospital; died February 26, aged 54, of heart disease.

Boyd Richard Read ☉ Washington, D. C.; George Washington University School of Medicine, Washington, 1912; died in the Providence Hospital, April 13, aged 55, of coronary thrombosis.

Cornelius B. Rogers, Buhler, Kan.; Kentucky School of Medicine, Louisville, 1902; died in the Halstead Hospital, Halstead, January 24, aged 68, of diabetes mellitus following an operation for carcinoma of the cecum.

George Eugene Schoolcraft, Hartwick, N. Y.; Albany Medical College, Albany, 1897; member of the Medical Society of the State of New York; coroner for two terms and health officer for many years; president of the Union National Bank, and president of the board of directors of the Hartwick Library; died in the Mary Imogene Bassett Hospital, Coopers-town, February 27, aged 76, of cerebral hemorrhage.

John Frank Schrader, Bridgeport, Ill.; Medical College of Indiana, Indianapolis, 1895; also a pharmacist; served

during World War I; formerly mayor of Bridgeport and for many years president of the Bridgeport township high school board; died February 9, aged 75, of cerebral hemorrhage.

Mary Scott, Skaneateles, N. Y.; Woman's Medical College of Pennsylvania, Philadelphia, 1892; died February 16, aged 85, of arteriosclerotic heart disease.

Samuel Andrew Scruggs, Americus, Ga.; Atlanta Medical College, 1914; member of the Medical Association of Georgia; served during World War I; on the staffs of the Prather Clinic and the Americus and Sumter County Hospital; member and past president of the Kiwanis Club; died February 26, aged 54, of carcinoma of the sigmoid with metastasis.

John Grundy Seay, Germantown, Tenn.; Kentucky School of Medicine, Louisville, 1901; served as a lieutenant in the medical reserve corps of the U. S. Army during World War I; died February 23, aged 71, of heart disease.

Walter Nelson Sedgwick ⊕ New York; Jefferson Medical College of Philadelphia, 1893; at one time medical director of the Security Trust and Life Insurance Company; died in St. Luke's Hospital February 24, aged 73, of pneumonia.

Harry Maxwell Smith, Natchez, Miss.; Tulane University of Louisiana School of Medicine, New Orleans, 1915; member of the Mississippi State Medical Association; fellow of the American College of Surgeons; served during World War I; died February 17, aged 57, of hypertensive heart disease and congestive heart failure.

Arthur Kern Spiering, Berwyn, Ill.; University of Illinois College of Medicine, Chicago, 1916; member of the Illinois State Medical Society; served on the staff of the West Suburban Hospital, Oak Park; died in Fond du Lac, Wis., February 2, aged 51, of heart disease.

Albert Cross Stewart ⊕ Tacoma, Wash.; University and Bellevue Hospital Medical College, New York, 1902; major in the medical corps of the U. S. Army during World War I, serving as a psychiatrist in a hospital in France; medical superintendent and owner of the Puget Sound Sanatorium, Puyallup; died in the Tacoma General Hospital February 3, aged 71, of pneumonia following injuries received in an automobile accident.

J. Boyd Swonger ⊕ Beaumont, Texas; Ohio Medical University, Columbus, 1901; served during World War I; died in the Veterans Administration Facility, Waco, January 26, aged 75, of coronary arteriosclerotic heart disease with myocardial damage and insufficiency.

Philip Cook Thomas, New York; New York Homeopathic Medical College and Hospital, New York, 1899; formerly assistant professor of obstetrics at his alma mater; served on the staff of the Metropolitan Hospital; died in the Orange General Hospital, Orlando, Fla., January 24, aged 70, of mesenteric thrombosis.

Dennie Marvin Thomasson ⊕ Lynchburg, Va.; University of Virginia Department of Medicine, Charlottesville, 1900; at one time on the Lynchburg public health staff; fellow of the American Proctologic Society; died February 18, aged 65.

James Algeron Toole, Stewart, Miss.; Memphis (Tenn.) Hospital Medical College, 1907; formerly health officer of Quitman County; died in Winona February 1, aged 60, of heart disease.

Delos Ashley Turner, Maywood, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; served during World War I; formerly attached to the U. S. Veterans Bureau in Reno, Nev.; at one time county physician, Esmeralda County, Nev., and district health officer, Nevada State Board of Health; on

the staff of the Veterans Administration Facility, Hines, where he died February 18, aged 66, of acute coronary thrombosis.

Smith Jay Underwood, Hale Center, Texas (licensed in Texas under the Act of 1907); died January 3, aged 69, of cerebral hemorrhage.

Arthur Grayson Vaden, Temperanceville, Va.; University College of Medicine, Richmond, 1895; member of the Medical Society of Virginia; died in the Medical College of Virginia Hospital, Richmond, February 1, aged 70.

Ramon Montgomery Vail, Thompsonville, Conn.; Harvard Medical School, Boston, 1918; found dead in his hotel room in Springfield, Mass., February 4, aged 50, of chronic myocarditis.

Salvatore Louis Vitelli, Yonkers, N. Y.; Regia Università degli Studi di Bologna, Facoltà di Medicina e Chirurgia, Italy, 1937; resident physician on the staff of St. Joseph's Hospital; died January 27, aged 33.

William Richard Warren ⊕ Key West, Fla.; University of Pennsylvania Department of Medicine and Surgery, Philadelphia, 1904; secretary of the Monroe County Medical Society; at one time associated with the U. S. Public Health Service; served during World War I; formerly health officer of Key West; died February 14, aged 67, of coronary occlusion.

Royal Latham Watson ⊕ Joliet, Ill.; Rush Medical College, Chicago, 1904; a captain in the medical corps of the U. S. Army during

World War I; served on the grade and high school boards; formerly chief of staff at Silver Cross Hospital and on the staff of St. Joseph's Hospital; past president of the police pension board; died in Daytona Beach, Fla., February 8, aged 63, of coronary thrombosis.

Theodore C. Wiggins, Great Neck, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1888; died January 26, aged 88, of chronic myocarditis and arteriosclerosis.

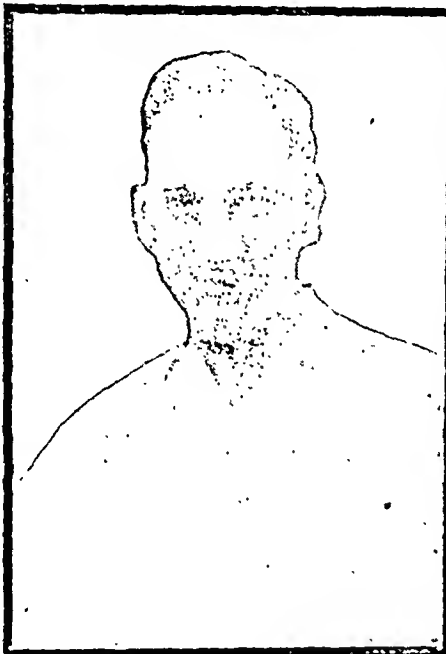
Richard Arnett Williams, Chicago; Meharry Medical College, Nashville, Tenn., 1902; died in the Provident Hospital February 23, aged 64, of cerebral hemorrhage.

Claude Le Roy Wills, Sinclair, Wyo.; University of Nebraska College of Medicine, Omaha, 1906; member of the Wyoming State Medical Society; secretary of the Carbon County Medical Society for fourteen years; served overseas as captain in the medical corps of the U. S. Army; served in the army of occupation for three years, retiring with the rank of major; died February 13, aged 68, of uremia.

KILLED IN ACTION

Julian Sydney Adleman, Medford, Mass.; Middlesex College of Medicine and Surgery, Waltham, 1935; commissioned a first lieutenant in the medical corps, Army of the United States, and began extended active duty on Sept. 21, 1942 with the medical detachment, 15th infantry; killed in action in the North African area July 19, 1943, aged 32.

Norman Epstein, Brooklyn; University of Louisville (Ky.) School of Medicine, 1938; served internship at the Jewish Hospital in St. Louis and a residency in the Jewish Hospital in Brooklyn; commissioned a first lieutenant in the medical corps, Army of the United States, June 9, 1942 and later promoted to captain; killed in action in New Britain, southwest Pacific, Dec. 22, 1943, aged 32.



LIEUT. JULIAN SYDNEY ADLEMAN,
M. C., A. U. S., 1911-1943



CAPT. NORMAN EPSTEIN, M. C.,
A. U. S., 1911-1943

Bureau of Investigation

CEASE AND DESIST ORDERS

Abstracts of Certain Federal Trade Commission Releases

The work of the Federal Trade Commission, in helping to protect the public against misrepresentation or fraud in the medical as well as other fields, has been greatly extended by the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act. The Food, Drug and Cosmetic Act of 1938 increased the Food and Drug Administration's control of the advertising claims and statements made on the label of a medicine or on the carton or in the accompanying leaflet, whereas what might be termed collateral advertising, that which appears in circulars, newspapers and magazines and over the air, comes more actively under the purview of the Federal Trade Commission by virtue of the Wheeler-Lea Amendment.

THE JOURNAL has at various times commented on the activities of the Federal Trade Commission in this connection, even before the Wheeler-Lea Amendment gave it its added rights. In some cases the Commission may accept from the person or concern involved a stipulation that the objectionable practices or claims cited will be discontinued. In other cases the Commission issues what is known as a Cease and Desist Order, in which the individual, manufacturer or distributor cited is ordered to cease and desist from practices which have been declared objectionable. In some cases the claims cited have been discontinued by the firms several months (or even longer) before the issuance of the order. Abstracts of some of the orders issued in 1943 follow in this form: name of product, name of distributor, date of issuance of complaint, date of issuance of Cease and Desist Order and terms of order.

Atmoray.—Atmoray, Inc., and Atmorone, both of Portland, Ore.; complaint issued Nov. 20, 1941; order issued April 7, 1943. Order directed these concerns to cease representing that the Atmoray is a cure or remedy for, or has any value in the treatment of, respiratory diseases generally, tuberculosis, pneumonia, anemia, kidney or prostate gland disorders, infectious diseases generally, sugar diabetes, rheumatism, cancer and other ailments, or that it is an effective oxidizing, germicidal or disinfecting agent. The order further directed the promoters to discontinue any advertisements which failed to reveal that the safety of the device depends on the output of the particular machine used, the size of the room in which it is employed, the ventilation, and the length of time that the mechanism is operated; that the concentration of ozone should not in any case be permitted to exceed one-half part of ozone per million parts of air; that proximity to the machine should be avoided, and that inhalation of an excessive amount of ozone may cause irritation of the respiratory organs.

Chen Yu Nall Lacquer.—Associated Distributors, Inc., and J. L. Young, husband, Paul Rowatt and Howard A. Young, husband; complaint issued April 22, 1942; order issued May 22, 1943. Order directed respondents to discontinue representing that the product is incapable of chipping or flaking, or effectively resists cracking or peeling under all conditions of use; to cease using Chinese letters or symbols or any picturization of Chinese objects in connection with the promotion of this preparation, or representing that it is made in or imported from China or any other foreign country, or that its formula is of Chinese or other foreign origin.

Electro Magnetic Nerve Vitalizer.—Charlotte Brandenburg, San Antonio, Texas; complaint issued Oct. 16, 1941; order issued March 19, 1943. Order directed the respondent to cease representing that this device, also known as "Electro Magnetic Vibrator," has therapeutic value in the treatment of any disease or condition of the body. The Federal Trade Commission found that the heat, vibration and magnetic field that the device produced were so slight that their effects would have no therapeutic value, and that any benefit from its use would be purely psychologic. The promoter was ordered to cease claiming that the use of her device would benefit the nervous system in any way, increase circulation or improve the quality of the blood; that it would relieve congested conditions, pain, soreness or inflammation, or be of any value in the treatment of paralysis, arthritis, neuralgia, apoplexy, arteriosclerosis, lumbago, influenza or deterioration of the tissues, reduce blood pressure, stimulate the action of the liver and heart or tear down diseased tissue.

Gordon Detoxifier.—Milton Irwin, Walter G. Berg and David W. Miles, trading as Associated Laboratories, Minneapolis; complaint issued March 10, 1942; order issued May 4, 1943. Order directed the respondents to discontinue any advertising which used the term "hydro-surgery" to describe their device or otherwise represent that whatever results it may accomplish are comparable to those of surgery, or any advertisement employing the word "Detoxifier" to designate the device or otherwise represent that it will rid the body of toxins; further, the order prohibited representations that this mechanism is an effective treatment for a long list of ailments, such as appendicitis, asthma, colitis, high or low blood pressure, heart, kidney, bladder or liver complications, lumbago, migraine, rheumatism, sinus trouble, or ulcers of the stomach or bowels, or that

such disorders are almost invariably caused by intestinal toxemia; that the device will cleanse the small intestine, massage or strengthen either intestine, purify the blood stream, re-establish a normal peristalsis or natural muscular activity of the intestines, or have any value in excess of that possessed by the ordinary enema; that the introduction of ozone into the body by means of this device accelerates the healing process, or that the Detoxifier is an effective treatment for constipation, except in so far as it may temporarily relieve by flushing the lower bowel.

"Hollywood" Cosmetics.—Phil, David A. and Joanne B. Howe, trading as Howe and Company, Seattle; complaint issued March 23, 1942; order issued May 11, 1943. Order directed these persons to cease using the word "Hollywood" to describe any products which are not made in Hollywood, and the words "Favorite of the Stars" to represent that these preparations are recognized by leading motion picture actresses as possessing superior cosmetic properties; further, the respondents were ordered to discontinue the words "carrot," "avocado," "honey and almond" or "turtle oil" to describe any product which does not contain these respective ingredients; to discontinue representing that "Crema Moderne" penetrates the skin, that the product formerly designated "Cleansing Crema, Carrot Type" induces natural lubrication of the skin; that the former "Crema Nocturne, Tissue Type" nourishes the skin or tissues or corrects dry skin, and that what had been called "Crema Nocturne, Avocado Type" supplies vitamins or other nourishment to the skin, stimulates dormant or inactive muscles, or rebuilds tissues.

McNeil's Magie Remedy.—McNeil Drug Company, Inc., and Associated Advertising Agency, Inc., both of Jacksonville, Fla.; complaint issued March 6, 1943; order issued May 8, 1943. Order directed these concerns to discontinue the following misrepresentations: That the preparation is a cure or remedy for rheumatism, neuritis, lumbago, gout, glandular swellings, backache, or pain in the bones, muscles or legs, or has any value in alleviating pain associated with such conditions beyond that afforded by a mild analgesic; that it has any effect in straightening limbs drawn out of shape by rheumatism, offers any benefit which cannot be obtained through use of other preparations, or has any significant value as a tonic. The respondents were further ordered to discontinue any advertising which failed to reveal that the product should not be used in cases of nausea, vomiting, or other symptoms of appendicitis, or by persons suffering from goiter or tuberculosis, provided, however, that if the label directions contain a warning as to the potential danger in using this product, such advertisements need carry only the warning: "Caution: Use only as directed." There is on record a stipulation which the McNeil concern entered into with the Federal Trade Commission in September 1937, in which it agreed to discontinue certain advertising misrepresentations for its product as an alleged remedy for rheumatism, neuritis, lumbago, gout and glandular swellings.

Pow-A-Tan Herb Tonic.—Pow-A-Tan Medicine Company, Huntington, W. Va.; complaint issued August 23, 1942; order issued April 27, 1943. Order directed the concern to discontinue certain misrepresentations, such as that this product is a cure or remedy or competent treatment for all ailments, such as rheumatism, hemorrhoids, la grippe and lumbago, and to cease and desist from disseminating advertisements which represent, among other things, that the nostrum is a cure or remedy for neuritis, arthritis, rheumatism, indigestion, la grippe, liver ailments, stomach gas or female complaints; that it will prevent constipation or acute diseases such as tuberculosis, colds, appendicitis, catarrh or typhoid, or produce a general tonic effect on the body.

Sal Hepatica.—Bristol-Myers Company, Hillside, N. J.; complaint issued Nov. 11, 1938; order issued May 11, 1943. Order directed the concern to discontinue any advertisements which represented, among other things, that the product will correct systemic (as distinguished from gastric) acidity, or restore the alkaline reserve of the body; that it constitutes a cure or effective treatment for rheumatism, arthritis, neuritis or unnatural fatigue or nervousness; that it furnishes any relief for upset stomach in excess of its value in reducing gastric acidity; that it will enable anyone to stay clear-headed or alert, free the intestinal tract of poisons or be an effective treatment for indigestion. These prohibitions, however, do not prevent the respondent from representing that Sal Hepatica is a competent laxative which will evacuate the lower intestinal tract and relieve discomforts arising from occasional dietary indiscretions. It is worth noting that in June 1937 the Bristol-Myers Company had entered into a stipulation with the Commission, agreeing to discontinue certain advertising misrepresentations.

Sal-Ro-Cin.—Pasadena Products, Inc., Pasadena, Calif.; complaint issued Nov. 13, 1939; order issued Feb. 25, 1943. Order directed the concern to discontinue any advertising that failed to reveal that Sal-Ro-Cin may be dangerous through frequent or continued use, and should not be taken in excess of the recommended dosage of 1 to 2 tablets 2 to 4 times daily. The order provided, however, that if the directions for use, wherever they appear on the label, should contain a warning of the potential dangers in the use of this product, the advertisements need contain only the statement: "Caution: Use only as directed."

Stuart's Laxative Compound Tablets.—F. A. Stuart Company, Marshall, Mich., and Benson & Dall, Inc., Chicago, an advertising agency; complaint issued April 30, 1942; order issued March 15, 1943. Order prohibited the concern from representing that the product is safe or harmless and may be used without ill effects. Also they were ordered to reveal in the advertising that the preparation should not be used in case of abdominal pains or other symptoms of appendicitis, provided that such advertising need contain only the statement, "Caution: Use only as directed" if the labeling directions for use should contain a warning to the same effect. As a matter of fact, some of the representations mentioned above were among those which the Stuart concern had agreed to withdraw from its advertising in a stipulation that it entered into with the Federal Trade Commission in March 1941.

reasonable certainty. A report of the pathologic features of the single fatal case observed at Camp Claiborne is presented. Sulfonamide treatment was found ineffective on a reasonable trial. Many patients were more uncomfortable when receiving these drugs. There appears to be a gradual transition in symptoms, signs and severity from cases of atypical pneumonia to those of bronchitis resembling atypical pneumonia, and from the latter group to cases of other respiratory illnesses. The main differences between these diagnostic groups depend on duration and severity of symptoms and physical signs rather than on characteristic symptomatology.

American Journal of Ophthalmology, Cincinnati

27:1-108 (Jan.) 1944

- Massive Bilateral Preretinal Type of Hemorrhage Associated with Subarachnoidal Hemorrhage of Brain, with Case Report and Pathologic Findings. L. C. Drews and J. Minckler.—p. 1.
- *Epidemic Keratoconjunctivitis from Subjective Viewpoint. T. D. Allen.—p. 16.
- Temporal Arteritis: Case Report with Eye Findings. L. T. Post and T. E. Sanders.—p. 19.
- Military Ophthalmology. W. T. Davis.—p. 26.
- Emile Javal: Appreciation. B. Chance.—p. 45.
- Endophthalmitis Phaeoanaphylactica. R. G. Seabee and H. C. Slaughter.—p. 49.
- Visual Acuity at Low Brightness Levels. M. Luchiesh and A. H. Taylor.—p. 53.
- *Orthoptics for the Infant Squinter, One to Four Years Old. Edith V. Roth.—p. 57.
- Use of Prisms in Orthoptics. Clara Burri.—p. 61.
- Dermoid Tumor of Sclera. L. F. Carter.—p. 67.
- Technic of Tonometry and Care of Tonometers. M. J. Schoenberg.—p. 70.
- New Suture for Use in Muscle Recession Operations. C. B. Foster.—p. 71.

27:109-216 (Feb.) 1944

- Tarsconjunctival Sliding-Graft Technics for Eyelid Reconstruction. H. S. Sugar.—p. 109.
- Development of System of Intracapsular Cataract Extraction. D. B. Kirby.—p. 124.
- Comparison of Ocular Reactions of Pigmented and Albino Rabbits to Normal Horse Serum: Intraocular Followed by Intravenous Injection. T. F. Schlaegel Jr.—p. 137.
- Present Limits of Gonioscopy. P. C. Kronfeld and H. Isabelle McGarry.—p. 147.
- Torsion in Persons with No Known Eye Defect. T. G. Hermans.—p. 153.
- High Congenital Myopia with Convergent Strabismus. R. C. Gamble.—p. 159.
- Coats's Disease. J. Laval.—p. 163.
- Postoperative Endogenous Infection of Eye with Recovery: Report of 2 Cases. D. Kravitz and L. J. Ducet.—p. 167.
- Essential Atrophy of Iris. F. McK. Ruby.—p. 171.
- Geographic Distribution of Ocular Infections, with Special Reference to Tropical and Subtropical Countries. C. Weiss.—p. 175.

Epidemic Keratoconjunctivitis.—The objective signs of epidemic keratoconjunctivitis are a gradually increasing conjunctival hyperemia and folliculosis, moderate to severe conjunctival edema, some sticky secretion, no pus, occasional pseudomembrane, slight photophobia, considerable edema of the lids, and regional adenopathy; later often superficial corneal spots varying greatly in size, density, and numbers; seldom iritis. There is a gradual return to normal, as a rule in three to six weeks, except that the corneal spots linger and usually interfere with visual acuity for several months. Allen describes epidemic keratoconjunctivitis from the subjective standpoint, having developed it thirteen days after contact with a patient. He deplors the careless moment when after examining the patient and before washing his hands he must have fingered his own eyelids. He pleads for thorough cleanliness. Giving a description of his subjective experiences, he admits that he had a peculiar mixture of the scientific attitude of the physician with the irritation of the restless patient. He thinks that cold boric acid compresses, intravenous vitamin C and encouragement were the factors which helped him most.

Orthoptics for Squinters One to Four Years Old.—Roth thinks that orthoptic treatment of squinting children between 1 and 4 years of age is a mistake. She maintains that these children are not capable of anything but play. The awakening of latent fusion requires much intense concentration, which is often a real task for the adult. To attempt such teach-

ing with a child under 4 is to take the chance of creating a distaste in the infant's mind for all orthoptic exercises—a distaste that will always be remembered. It is better to let a child wait for straight eyes until he is ready to cooperate.

Bull. of the U. S. Army Med. Dept., Washington, D. C.

73:1-106 (Feb.) 1944

- Principles of Treatment in Peripheral Nerve Injuries. M. T. Schnitker.—p. 53.
- *Aerodontalgia. D. F. Mitchell.—p. 62.
- Psychiatric Experiences in Tropical Theater of Operations. S. Peal.—p. 68.
- Treatment of Fulminating Meningococcal Infections. H. M. Thomas Jr.—p. 78.
- Veterinary Service in Iceland. F. A. Todd.—p. 85.
- Photocautery Technic. A. W. Fuchs.—p. 90.
- New Elastic Splint for Wrist Drop. F. H. Mayfield.—p. 96.
- Evaporation Beds for Kitchen and Shower Waste. H. A. Johnson.—p. 98.
- Dentistry in German Army. R. E. Frutiger.—p. 100.

Aerodontalgia.—Aerodontalgia is experienced at altitudes ranging from 8,000 to 40,000 feet. The cases studied at Randolph Field, Texas, tend to support the opinion that the pain is due to the presence of some preexisting pathologic change in the pulp or periapical tissues. The incidence of aerodontalgia among personnel exposed to artificially lowered pressures in a low pressure chamber was about 1.2 per cent. The majority of patients were referred to Mitchell after they experienced dental pain in the low pressure chamber. A few were pilots who voluntarily reported to the clinic in search of the reason for dental pain which had occurred at altitudes ranging from 8,000 to 10,000 feet. A complete dental history was obtained from each patient reporting to the dental clinic. Symptomatic evidence, usually supported by x-ray examination, has pointed to the presence of pathologic changes in and around the tooth in question in all cases. Thirteen of the 25 cases observed were apparently due to a subacute pulpitis under deep cavities or restorations. The treatment resolved itself into nine extractions of abscessed teeth, the placement of seven temporary zinc oxide and eugenol fillings, and the repair of an amalgam restoration. Ten of the 25 patients studied had good results with no recurring pains, while 15 of this number were not available for further observation. Aerodontalgia might be brought about by the lowered temperatures of high altitudes or by the inhalation of cold oxygen. The pain might be induced by permitting the oral fluids or air to reach the sensitive dentin of the walls or floor of the cavities or by the loosening of a restoration, permitting it to be dislodged from the cavity.

Endocrinology, Springfield, Ill.

34:77-142 (Feb.) 1944

- Effect of Adrenocorticotrophic Hormone on Anterior Pituitary of Normal Young Male Rat. A. A. Koneff.—p. 77.
- Role of Thyroid in Cytologic Response of Pituitary to Low Intake of Iodine. A. Chapman and G. M. Higgins.—p. 83.
- Influence of Thyroid Gland on Pituitary Gonadotropic Activity in Rabbit. J. P. Chu.—p. 90.
- *Preparation, Biologic Assay and Properties of Relaxin. A. A. Abramowitz, W. L. Money, M. X. Zarrow, R. V. N. Talmage, L. H. Kleinholz and F. L. Hisaw.—p. 103.
- Concentration of Relaxin in Blood Serum of Pregnant and Postpartum Rabbits. S. N. Marder and W. L. Money.—p. 115.
- Importance of Female Reproductive Tract in Formation of Relaxin. F. L. Hisaw, M. X. Zarrow, W. L. Money, R. V. N. Talmage and A. A. Abramowitz.—p. 122.

Relaxin.—It was demonstrated in 1926 that relaxation of the symphysis pubis in a guinea pig was under hormonal control of a substance called relaxin. This hormone was found in the blood of several species of pregnant mammals, in extracts of rabbit placentas and in corpora lutea of the sow. The discovery that relaxation of the symphysis pubis of a guinea pig could be induced with estrogen and progesterone led many investigators to doubt the existence of a separate hormone relaxin. Abramowitz and his co-workers reinvestigated this problem, their aim being to obtain a preparation of relaxin by a simple method, to make a quantitative study of its activity and to determine whether active solutions of hormone have estrogenic or progestational effects. They were able to obtain relaxin by a simple method of extraction from sow corpora lutea. Their relaxin preparation was negative for estrogenic and progestational effects.

Journal of Mount Sinai Hospital, New York

10:503-762 (Jan.-Feb.) 1944. Partial Index

- The Mechanism of Lung Clearance and Some Practical Implications. J. G. M. Bullowa.—p. 508.
- Metastatic Brain Tumor with Bronchogenic Carcinoma as Primary Source. J. H. Globus.—p. 533.
- Influence of Neurohormonal Regulations on Anaphylaxis and Allergy. J. Harkavy.—p. 565.
- Hematomas Tuberculosis with Recurrent Disseminations: Report of 2 Cases. H. Heunell.—p. 575.
- Bronchopulmonary Moniliasis: Case Report with Pathologic Study. A. E. Jaffin.—p. 586.
- Development of Technique of Blood Transfusion Since 1907, with Special Reference to Contributions by Members of Staff of Mount Sinai Hospital. R. Lewisohn.—p. 603.
- Coley's Mixed Toxins of Erysipelas and Prodigiosus: Report of 2 Cases of Inoperable Sarcoma Treated by Coley's Method. H. Lilienthal.—p. 623.
- Spontaneous Pneumothorax. M. Taschman.—p. 684.
- Subtotal Pancreatectomy for Hypoglycemia. A. I. Umansky.—p. 698.
- Constrictive Pericarditis: An Atypical Case; Extreme Ascites; Cure by Pericardiectomy. W. Hitzig.—p. 722.
- Patent Ductus Arteriosus; Ligation. E. E. Arnheim.—p. 727.
- Subacute Streptococcus Viridans Endarteritis Superimposed on Patent Ductus Arteriosus: Recurrence After 12½ Years Recovery Following Operative Treatment. A. S. W. Tourof.—p. 729.
- Massive Pulmonary Embolism: Continuous Intravenous Morphine Drip; Recovery. H. Neuhof.—p. 731.
- Multiple Aneurysms of Indeterminate Origin Arterial Repair. S. S. Bernstein.—p. 736.

Journal of Nutrition, Philadelphia

27:1-122 (Jan.) 1944

- Nutrition of Cotton Rat (*Sigmodon Hispidus Hispidus*). J. M. McIntire, B. S. Schweigert and C. A. Elvehjem.—p. 1.
- Effect of Excessive Dietary Sodium and Potassium on Carbohydrate Metabolism of Normal Rats. R. C. Lewis Jr., F. S. McKee and B. B. Longwell.—p. 11.
- *Retention of Nutritive Quality of Beef and Pork Muscle Proteins During Dehydration, Canning, Roasting and Frying. C. E. Poling, H. W. Schultz and H. E. Robinson.—p. 23.
- Availability of Calcium and Phosphorus of Defluorinated Rock Phosphate for Rat. B. F. Barentine, L. A. Maynard and J. K. Loosli.—p. 35.
- Copper Metabolism and Requirement of Young Women. Ruth M. Leverton and Emily S. Binkley.—p. 43.
- Folic Acid, Biotin and Pantothenic Acid Deficiency and the Liver Storage of Various Vitamins in Rats Fed Sarcosylsulfathiazole in Highly Purified Rations. L. D. Wright and A. D. Welch.—p. 55.
- Secondary Anemia Due to Prolonged and Exclusive Milk Feeding Among Shoshone Indian Infants. M. Pijean and C. A. Elkin.—p. 67.
- Blood Plasma Ascorbic Acid Values Resulting from Normally Encountered Intakes of This Vitamin and Indicated Human Requirements. Mary L. Dodds and Florence L. MacLeod.—p. 77.
- *Actions of Benzadrine and Propadrine in Control of Obesity. M. L. Tainter.—p. 89.
- Studies of Comparative Nutritive Value of Fats: I. Growth Rate and Efficiency of Conversion of Various Diets to Tissue. H. J. Deuel Jr., E. Movitt, Lois F. Hallman and F. Mattson, with technical assistance of Evelyn Brown.—p. 107.

Retention of Nutritive Quality of Beef and Pork Proteins.—Poling and his collaborators compared the nutritive value of the meat proteins in raw cured pork shoulder, canned cured pork shoulder, roast pork shoulder, fried pork shoulder, dehydrated pork and dehydrated beef in eight to ten week feeding experiments on growing albino rats. The studies indicated that the nutritive quality of the proteins of cured pork shoulder may be slightly lowered by a commercial canning process. The proteins of dehydrated pork muscle and fried fresh pork shoulder are slightly superior in nutritive quality to those of canned cured pork shoulder, roast fresh pork shoulder and dehydrated beef muscle. Since the evidence indicates some probability of a slight damage to the proteins of cured pork shoulder by the described commercial canning procedure, this may be an indication that a more severe processing schedule might damage the pork proteins to a greater extent. These investigations have not determined whether the schedules used in canning other meats, these schedules often being more severe than for cured pork, are damaging to the respective proteins, and also whether the nutritional quality of the muscle proteins of other species is changed by heat treatment.

Amphetamine and Propadrine in Obesity.—Tainter found that amphetamine (benzedrine) and propadrine cause a loss of body weight in white rats in a manner comparable to that reported for patients. Energy output changes do not explain the decreases in body weight. While amphetamine increased the oxygen consumption for about six hours after subcutaneous injection, it did not change the total oxygen

used in twenty-four hours. Subcutaneous injections of propadrine did not change the metabolism even temporarily. Both amphetamine and propadrine slowed the rate of passage of food through the gastrointestinal tract. The slower passage through the intestine apparently did not modify appreciably the digestion or assimilation of food, since it produced no change in the dry weight of the stools. The food intake was impaired by these drugs, especially during the first few days of medication when the weight changes were greatest. A tolerance to the appetite effect of the drugs quickly developed, so that food consumption returned to normal after about a week. These results indicated that amphetamine and propadrine might be of greatest value in those cases of obesity in which control of the appetite was the most pressing need, and when the dosage could be kept low and duration of medication short to minimize the development of tolerance. Propadrine was weaker than amphetamine but, since it lacked the unpleasant central-excitant effects of the latter, might well be used first. Amphetamine or propadrine can probably serve only as an adjuvant to the commonly employed measures in controlling obesity.

New England Journal of Medicine, Boston

230:125-156 (Feb. 3) 1944

- Peritoneoscopy in Liver Disease. E. B. Benedict.—p. 125.
- *Dicumarol Therapy in Thrombotic Emergencies. J. A. Evans.—p. 131.
- Abscess of Spleen. I. N. Wolfson.—p. 135.
- Syphilis (concluded). G. M. Crawford.—p. 138.

Dicumarol Therapy in Thrombotic Emergencies.—Evans states that at the Lahey Clinic thrombotic emergencies have been treated since August 1941 by one or more of three methods: paravertebral procaine sympathetic block, venous section and ligation, and anticoagulant therapy with dicumarol, with or without heparin. Fifty-six patients were treated by dicumarol or dicumarol combined with heparin. Of the four deaths that occurred, two can be ascribed directly to dicumarol poisoning and hemorrhage. Hemorrhagic phenomena were evident in 8 cases (14 per cent). These complications emphasize the dangers and disadvantages of dicumarol therapy, but the obvious advantages to date appear to outweigh the dangers of this preventive method if adequate laboratory facilities are available and proper precautions are observed. The principal precaution to be observed is the determination of the morning prothrombin time before ordering the daily maintenance dose of dicumarol. The combined use of heparin and dicumarol is considered safe only if the doses of heparin are controlled by twice daily determinations of the coagulation time of the blood, and the doses of dicumarol by daily determinations of the prothrombin time. One benign and not fatal pulmonary embolism occurred in a series of 46 cases of venous thrombosis treated by the anticoagulant dicumarol alone or combined with heparin. This series of 46 cases of thrombophlebitis is not large enough to justify the conclusion that venous ligation is an unnecessary procedure. If a patient is over 50 and has had a warning benign pulmonary embolism, venous ligation is still indicated. If statistical proof can be accumulated from other workers in this field, venous ligation may prove unnecessary except in rare cases of recurrent emboli occurring in spite of anticoagulation therapy.

New Orleans Medical and Surgical Journal

96:291-340 (Jan.) 1944

- *Bagassosis: Case Report. S. C. Jamison, Margaret Strange Bryan and Jane Matthews Day.—p. 291.
- Experimental Studies on Urea Peroxide with *Clostridium Welchii* in Vitro and in Vivo. M. Kepl, E. Hauser, G. Caldwell and A. Ochsner.—p. 294.
- World Wars and Their Bearing on Medical Practice, with Special Reference to Digestive and Tropical Diseases. G. B. Eusterman.—p. 295.
- Diagnostic Confusion Between Acute Appendicitis and Pelvic Inflammatory Disease. F. F. Boyce.—p. 303.
- Hypertension: Role of Renin and Angiotonin in Maintaining Blood Pressure. D. C. Musser.—p. 308.
- Portal Cirrhosis with Reference to Recent Therapy. E. W. Edwards.—p. 314.
- Tuberculosis and Pregnancy. E. Hull.—p. 321.
- War and Women Doctors. Elizabeth Bass.—p. 324.

Bagassosis.—According to Jamison and his collaborators involvement of the lung due to the inhalation of bagasse dust constitutes a clinical entity known as bagassosis. It is a rare

condition, occurring apparently only in those individuals who are exposed to the dried material. The authors report the history of a Negro aged 32 who was hospitalized with severe dyspnea. For eight months prior to admission the patient's work consisted in moving bales of damp cane grindings from the sugar house to the fields. During this time he remained in good health. One month before admission his work was changed to that of moving the bagasse from the fields to the railroad cars. This bagasse was dry, and often when the wind blew the air was so dusty that the workmen would have to turn away from the bagasse in order to breathe. They wore no masks. Percussion showed resonance over both lung areas. Tuberculin skin tests were negative. Smears from three sputum samples were negative for acid fast organisms. Examinations of the sputum for tubercle bacilli by the concentration method were likewise negative on three occasions. Fungi were searched for but not found. The roentgenogram taken on admission showed infiltration throughout both lung fields, which had a slightly miliary appearance. No specific medication was given. Examination on the twenty-fourth hospital day showed slight clearing of the chest. Follow-up examination two and four months later revealed that the clearing of the lung progressed while the patient worked as a wood cutter. This case is of interest because it shows that bagassosis may be contracted even when working outdoors with the dried material and that the disease is not a permanent condition and recovery may occur over a period of a few months.

New York State Journal of Medicine, New York

44:225-336 (Feb. 1) 1944

- *Frequency and Course of Cancer in Diabetics. F. Ellinger and H. Landsman.—p. 259.
- Response to Treatment of Peptic Ulcer. E. F. Driscoll and A. H. Aaron.—p. 266.
- *Jaundice: Hepatocellular Catarrhal Icterus and Hepatitis Following Use of Yellow Fever Vaccine: Clinicopathologic Comparisons. I. W. Held and A. A. Goldbloom.—p. 270.

Cancer in Diabetic Patients.—Ellinger and Landsman point out that cancer and diabetes mellitus are predominantly diseases of the older population and both are characterized by a disturbance in the carbohydrate metabolism. During the years 1933 to 1941 a total of 1,280 patients with diabetes mellitus were seen at the Montefiore Hospital for Chronic Diseases in New York City. Thirty-nine of these had a malignant tumor. This cancer incidence of 3.04 per cent is in agreement with a cancer incidence of 2.95 per cent derived from 14,332 cases of diabetes collected from the world literature. This incidence is definitely higher than the cancer incidence of 0.46 per cent in the general population. In agreement with previous observations, a more virulent course of malignant growth in diabetic patients has been found with increasing severity of the diabetic condition. The average lifetime after onset of tumor symptoms in the series presented in this paper decreased from 4.6 years in mild diabetes to 0.9 year in severe diabetes. In agreement with the remarkably long average survival time of 4.6 years in mild diabetes, a closer analysis showed that 9 out of the 39 patients with cancer and diabetes lived for five years and longer after onset of tumor symptoms. All but 1 of these patients had mild diabetes. It is highly suggestive that mild diabetes produces a retardation of malignant growth and of spread and growth of metastases. Results of experimental cancer research as well as some clinical observations are quoted in explanation of the higher cancer incidence among the diabetic as well as of the apparent retardation of malignant growth in mild diabetes. Both phenomena could be traced to the abnormal carbohydrate metabolism.

Jaundice Following Use of Yellow Fever Vaccine.—Held and Goldbloom differentiate between regurgitation icterus, absorption icterus and retention icterus. The so-called absorption icterus is due to changes in the parenchyma of the liver and is therefore a truly hepatocellular icterus. Hepatocellular icterus is classified pathologically into (1) noninflammatory, parenchymatous catarrhal icterus, (2) inflammatory, postvaccinal hepatitis and (3) rarer changes causing jaundice, including cirrhosis, acute yellow atrophy, hepatic carcinoma and stones of

the liver. Hepatocellular catarrhal icterus and postvaccinal hepatitis are symptomatically alike. Duration of the prodromal stage in catarrhal icterus is six to nine days. It is considerably shorter than in postvaccinal hepatitis, in which the gastrointestinal symptoms may precede jaundice by several weeks. The average course of hepatocellular catarrhal icterus is five or six weeks, with complete and rapid recovery. In postvaccinal hepatitis, although the jaundice may not be pronounced, convalescence is extremely slow. The patient may have disturbed appetite, slight secondary anemia and elevation of bilirubin in the blood for several months. Postvaccinal hepatitis is most likely due to a virus contained in some of the stocks of vaccine for yellow fever. Postvaccinal hepatitis is pathologically a true hepatitis but fortunately reversible in the majority of instances. The simple Volhard water test, which is of great diagnostic and prognostic value, should be carried out more often. Proteins should constitute an important part of the dietetic regimen. When the patient cannot tolerate proteins because of digestive disturbance, amino acids should be given intravenously. Intravenous administration of dextrose in the preicteric stage is an important prophylactic measure against possible dehydration. It served the immediate purpose of lessening the severity of jaundice and also shortens the course of the disease. Treatment is symptomatic. In protracted jaundice injections of 10 to 20 units of insulin daily are of great value.

South Carolina Medical Assn. Journal, Florence

40:1-26 (Jan.) 1944

- Diagnosis and Treatment of Bleeding Diseases. R. R. Kracke.—p. 1.
- Tropical Medicine During and After War. H. E. Meloney.—p. 6.
- "John Jones and His Job with Sonoco." W. H. Bailey.—p. 11.

40:27-52 (Feb.) 1944

- Some of South Carolina's Medical Problems. W. A. Smith.—p. 27.
- Clinical Experiences with Diethylstilbestrol. J. D. Guess.—p. 30.
- Practical Points in Intravenous Therapy Technique. S. G. Stubbins.—p. 33.

Southern Medical Journal, Birmingham, Ala.

37:63-122 (Feb.) 1944

- Effects of Accelerated Program of Medical Schools on Faculty and Students After Eighteen Months' Experience. S. E. Dorst.—p. 63.
- Elimination of Abdominal Colostomy and Other Intestinal Fistulas. W. W. Babcock.—p. 66.
- Nonmalignant Intestinal Obstruction. M. J. Henry.—p. 69.
- Recent Experimental Studies on Effects of Immobilization of Denervated Muscles. O. L. Huddleston.—p. 72.
- Interrelation of Impairment of Genital and Rectal Support. C. W. Barrett.—p. 77.
- *Continuous Caudal Analgesia in Obstetrics. J. Carangelo.—p. 80.
- *Continuous Caudal Analgesia in Normal and Complicated Labor: Report of Death. P. P. Volpito, R. A. Woodbury, B. E. Abreu and R. Torpin.—p. 83.
- Treatment of Acute Medical Emergencies. E. B. Ferris.—p. 87.
- Hematologic Problems in General Practice of Medicine. R. R. Kracke.—p. 90.
- Community Blood and Plasma Transfusion Service. P. I. Hoxworth and G. Block.—p. 96.
- Public Health Problems in Cantonment and Extracantonment Areas. R. H. Hutcheson.—p. 100.
- *Jecp Disease (Pilonidal Disease of Mechanized Warfare). L. A. Buie.—p. 103.
- Role of Sinusitis in Human Pathology. M. M. Cullom.—p. 110.

Continuous Caudal Analgesia in Obstetrics.—Carangelo employed continuous caudal analgesia in 61 deliveries. The average length of time the analgesia was continued was three and three-quarters hours, the shortest was forty-five minutes and the longest was twelve hours. The average metycaine dosage was 1.4 Gm. The maximum dosage given was 6 Gm. No supplementary anesthesia was needed in any case. All babies were in excellent condition and cried spontaneously. No pain was felt, despite forceps or episiotomy repair. Pelvic and perineal relaxation is pronounced. Although the urge to bear down disappears there is no motor paralysis, and the patient may cooperate by bearing down voluntarily. Uterine tonicity is maximal, and thus blood loss is reduced to a minimum. Continuous caudal anesthesia is of practical value in dystocia and may be administered to give an exhausted patient a rest during a protracted labor with gratifying results. Labor appears to be shortened in most cases. The method is ideal in the presence of cardiac or pulmonary conditions. The procedure should be of most value in the hands of the obstetrician who prefers a

selective power of anesthesia and endeavors to adapt the anesthesia to a patient rather than accommodate the patient to an anesthetic routine. It is a procedure which requires special training to obtain satisfactory results and should be given only by persons experienced in the technic.

Continuous Caudal Analgesia in Normal and Complicated Labor.—Volpitto and his associates report their experiences with continuous caudal analgesia in 77 cases. Procaine hydrochloride or metycaine hydrochloride in either 1 or 1.5 per cent solutions was used. Thirty cc. of one of these solutions was placed in the caudal canal. Technical difficulties were encountered in 5 of the 77 cases. In 2 of this group the failure was due to the needle being outside the caudal canal. In 3 the needle was in the proper place, but no analgesia developed because a 0.15 per cent solution was supplied through error. Nausea and vomiting occurred in about one fourth of the patients during caudal analgesia. Two of the patients developed infections at the site of caudal injection. Both were obese. One maternal death occurred approximately twenty-five minutes after a total of 30 cc. of 1.5 per cent metycaine had been injected. The author stresses that labor pains should be well established before the caudal analgesia is begun. The area of injection should be cleansed before and after the analgesia. It is advisable to cover the skin puncture with collodion at the end of the procedure in order to minimize the possibility of infection. If pain relief is not complete within twenty minutes after injection of 30 cc. of either 1 per cent or 1.5 per cent of the anesthetic solution it can be attributed to either the needle being outside the caudal canal or to an anatomic abnormality of the sacrum. The first is more likely to be the case. Extremely obese women are poor subjects for caudal analgesia not only because of anatomic difficulties in properly placing the needle but also from the danger of infection. This technic may be well suited for patients having cardiovascular disease, all types of pulmonary disease, nephritis, toxemia of pregnancy and eclampsia. The second stage of labor is definitely prolonged. The incidence of outlet forceps is definitely increased in primiparas. It may be unwise to employ analgesia in the presence of intrauterine hemorrhage. Both procaine and metycaine have toxic potentialities, should be used with caution and should be preceded by a short acting barbiturate. The maternal death which occurred in this series was attributed to circulatory collapse. The patient should have been watched more closely. Continuous caudal analgesia is not a routine method applicable to all patients in labor.

Jeep Disease: Pilonidal Disease of Mechanized Warfare.—Buie says that in 1940 in the United States Navy the number of sick days occasioned by pilonidal disease exceeded those occasioned either by hernia or by syphilis. At first many induction boards rejected men with pilonidal conditions. Later it was found necessary to become more liberal, and in accordance with an official order only those were rejected who presented conditions too extensive to permit early rehabilitation by surgical operation. Consequently pilonidal problems became prominent in Army and Navy medical circles. It was thought that all patients should be treated surgically in order that interference with active duty at a later date might be obviated. It was feared that riding on jeeps, trucks and tanks would play havoc even with the innocent sacrococcygeal dimple. Consequently a large number of operations began. Soon it was found that the method did not "proceed according to plan." A review of the records led to the following recommendations: 1. Symptomless "sacral dimples" or sinuses without discharge should not disqualify and should not be operated on. 2. No excisions should be done in mild cases with infrequent symptoms. 3. Even in severe cases excision should not be performed routinely. 4. If one operation fails, a second operation must not be performed. 5. Wide excision of skin prolongs healing time unnecessarily. 6. Greater care is needed in selection of the method of treatment to fit the individual case. The author evaluates closed and open operations and favors the latter. At the Mayo Clinic open types of operations have been employed for many years. The average length of time from operation to a completely healed wound is about thirty days.

Union Médicale du Canada, Montreal

73:105-230 (Feb.) 1944

- Oxygen Therapy and Transfusion in Treatment of Respiratory Disorders of Infants. N. Vezina.—p. 110.
Diagnoses Revealed by Direct Endoscopy with Biopsy if Necessary. V. Latraverse.—p. 122.
Instability of Certain Crystalline Astigmatisms. E. Blain.—p. 127.
Tuberculosis of Ear. G. L. Cote.—p. 129.
Nasal Cauterizations. O. Frenette.—p. 135.
*Serotherapy of Whooping Cough. J. P. Beaudet.—p. 137.

Serotherapy of Whooping Cough.—Beaudet had the opportunity to try an antiendotoxin in the treatment of whooping cough. This specific antitoxin is prepared by vaccinating rabbits with a mixture of whooping cough vaccine and whooping cough toxoid. The author observed about 100 cases of whooping cough, and in about half of them he employed the antiendotoxin. Twelve of the children treated were less than 1 year old, 21 were between 1 and 5 years and 19 were 5 years or older. All the patients treated had bacteriologically verified whooping cough. The children were given 10 cc. or 10,000 units of serum into the muscles of the buttocks. In the young infants 5 cc. was injected into each buttock in order to avoid distention of the tissues. The local and general reactions were always mild; a transitory urticaria was observed in 8 cases. Of the children who received the serum during the first week of the paroxysms of coughing, when the average number of paroxysms was ten in twenty-four hours, 53 per cent recovered within fifteen days and 26 per cent in a month, whereas in others there was no improvement and the attacks persisted for seven or eight weeks. In the group of children who were given the serum late, that is, during the third week of the paroxysms, 75 per cent were cured after fifteen days, whereas the other 25 per cent continued to cough for two months. Children who received the serum after having coughed a month continued to do so for more than a month. Other physicians who used the same serum obtained approximately identical results. The author also observed 5 contacts who were given a prophylactic dose of 10 cc.; 3 of these children did not develop whooping cough, but the other 2 developed an unattenuated attack from three to four weeks after the prophylactic serum treatment. This is not surprising in view of the fact that passive immunity conferred by serum is of short duration. The author points out that in view of the polymorphic character of whooping cough it is difficult to evaluate a treatment. In the control group 2 fatal cases of bronchopneumonia developed, whereas in the group receiving the antiendotoxin there was no bronchopneumonia, otitis or any of the other complications of whooping cough. Furthermore, 12 of the patients were infants of less than a year, that is, of an age when whooping cough is particularly grave.

West Virginia Medical Journal, Charleston

40:37-68 (Feb.) 1944

- Medical Education in West Virginia. J. V. Liere and G. S. Dodds.—p. 37.

- *Herniation of Stomach Through Esophageal Hiatus in Diaphragm: Statistical Analysis of 57 Cases. W. Kay and P. P. Vinson.—p. 46.
Diagnosis and Treatment of Gallbladder Disease. H. C. Myers.—p. 49.

Herniation of Stomach Through Diaphragm.—Kay and Vinson analyze the symptoms and clinical aspects in 57 of 59 patients with esophageal hiatal hernia whom they observed during the past six and one-half years. Forty-five of the patients had hernia of the type associated with shortening of the esophagus. The remaining 14 had hernia of the paraesophageal type. The so-called short esophagus type of diaphragmatic hernia is really not a hernia but a congenital abnormality in which a portion or all of the stomach has developed above the diaphragm. Pain, dysphagia and flatulence are the most frequent symptoms, with bleeding and dyspnea occurring less often. Operative repair is seldom indicated in the so-called short esophagus type of hernia. When dysphagia is a prominent symptom relief can be obtained by passage of dilating sounds into the stomach over a previously swallowed silk thread. Paraesophageal hernia can be repaired by operation with satisfactory functional results. Not all patients with this type of hernia require operation; many may be made comfortable by passage of esophageal sounds, by regulation of the diet and activities and by assumption of the semierect position in sleeping. The esophagus should be investigated before operation for any type of herniation through the esophageal hiatus in the diaphragm.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

17:1-32 (Jan.) 1944

Diagnosis, Classification and Treatment of Tumors of Salivary Glands: Symposium. R. T. Payne, Margaret C. Tod and M. Lederman.—p. 3.

Venous Intravasation During Uterosalpingography. E. R. Williams.—p. 13.

Malignant Tumors of Upper Jaw. B. W. Windeyer.—p. 18.

Ainhum: Case Report. W. S. Shearer.—p. 25.

Time Intensity Factor in X-Ray Irradiation. Edith Paterson.—p. 26.

Salivary Calculus or Tartar: Some Notes on Case and Definition of Term "Salivary Calculus."—p. 31.

British Medical Journal, London

1:33-68 (Jan. 8) 1944

Gunshot Wounds of Head in Acute Stage. H. Cairns.—p. 33.

*Burns and Scalds in Children: Investigation of Their Cause and First Aid Treatment. A. W. Wilkinson.—p. 37.

*Heat in Treatment of Shock. A. W. Kay.—p. 40.

Influenza A: Account of a Minor Epidemic. T. H. Donnelly, H. P.

Hughes, D. Robertson and E. Philipp.—p. 42.

Estimation of Hemoglobin by Photoelectric Absorptiometers. J. M. Peterson and D. H. Strangeways.—p. 43.

Burns and Scalds in Children.—Wilkinson reports the burns and scalds in 366 children admitted to the Children's Hospital in Edinburgh. The commonest cause was the upsetting of a cup of tea. The average age in this group was 18 months, and usually the child was being nursed on the lap within easy reach of the tea cup; sometimes the adult was holding both child and cup when the accident occurred. More extensive injuries resulted from the upsetting of kettles (59) or teapots (43): most of these were due to nursing children in close proximity to the table, but a number resulted from the child upsetting a teapot or kettle on a stove or on the floor. Saucepans (63) were often on the floor or, when on a fire or stove, the projecting handle was grasped by the child. The most serious burns were those in which the child's clothes were ignited. This type was most common in girls, often being due to the hem of a nightgown or skirt becoming ignited as the child reached for the mantelpiece or stood too close to an unguarded fire. Some were the result of the child, or other children, playing with matches. An attempt to relate the circumstances of the accident to the home conditions indicated that bad accommodation is not so prominent a factor as the domestic habits of the family. In some families more than 1 child had been scalded or burned. Most injuries occurred in the second year of life: 70 per cent of the patients were less than 3 years and 88 per cent less than 5 years of age. The mortality rate was high in the first, fourth and fifth years. The author lists the first aid measures that had been applied. Olive oil was the most frequently used substance, but if a coagulant or other agent in a watery solution or base is subsequently to be used all the oil must be removed from the burn and adjacent skin, involving prolongation of local treatment and increased trauma to the raw surface. Oily and greasy substances do not reduce the loss of plasma from the raw surface, and in some cases their application caused more pain than the initial injury. Various tannic acid jellies were used, but in no case was such treatment properly carried out. Picric acid is still frequently employed in spite of the danger of liver damage which is known to be associated with its use. Patients whose injuries had been covered only with a dry cloth or dressing were in a better state on admission than those with comparable injuries which had been treated with the wealth of the domestic pharmacopeia.

Heat in Treatment of Shock.—Kay investigated on normal subjects the effects of heat as usually applied in shock. Fifteen young adult males were exposed for one hour to the hot air cradle. Intravenous saline solution was administered to 10 of these and intravenous plasma to 5. A progressive rise in pulse rate and venous pressure, together with a progressive fall in arterial blood pressure, was observed in all cases. Symptoms included nausea, vomiting, dehydration, headache, perspiration, muscular pains and exhaustion. In certain cases these were severe. The prolonged use of heat appears to be contraindicated in the treatment of patients suffering from traumatic shock.

Lancet, London

1:73-106 (Jan. 15) 1944

*Hand Infections Treated with Penicillin. M. E. Florey and R. E. O. Williams.—p. 73.

Rehabilitation of Chest Case. F. R. Edwards.—p. 81.

*Some Sensory Effects of Wounds. H. Burrows.—p. 84.

Myelogenous Leukemia Complicating Pernicious Anemia. P. B. Woolley.—p. 85.

Acute Thyrotoxic Bulbar Palsy. L. P. E. Laurent.—p. 87.

Hand Infections Treated with Penicillin.—Florey and Williams chose acute infections of the hand to ascertain the possibilities of using penicillin in acute pyogenic infections. The complicated structure of the hand permitted observations of the effects of penicillin on skin, areolar tissue, blood vessels, nerves, muscles, tendons, synovial membranes of tendon sheaths and joints and bone. A comparative study was made of 212 infections. About half were treated by current methods and the other half by local application of penicillin superimposed on the usual surgical procedures. The great majority of control patients remained septic for well over a week and nearly three fourths were infected till their wounds healed. In the penicillin treated series sepsis was eliminated within a week. Pus was scanty or absent. Relief of pain and throbbing and improvement in the general condition have been striking, and penicillin has effected a great saving in the number of dressings. The mean healing time has been considerably reduced by penicillin, but a few cases have shown undue prolongation of healing. Other factors may have caused this. In bone inflammation penicillin treatment led to rapid rarefaction concurrently with improvement in the clinical condition. Reformation of bone tissue took place readily. The rapid return of mobility to infected parts was one of the most striking features of the penicillin series, but complete normality was not regained after tendon sheaths had contained pus. The dry impure calcium salt may have harmful effects on wound surfaces not protected by granulation tissue. Some patients complained of burning when the dry salt was used. Among chronic cases penicillin proved of value in preparing infected surfaces for skin grafting and infected stumps for amputation and for procuring complete healing in chronic dermatitis. The total amount of penicillin used to treat more than 100 cases was not more than 500,000 units. Complete figures for 35 of the penicillin treated patients showed a saving of about 1,000 man-days of working time as compared with the controls. These results have been obtained by careful attention to technic and consistent twenty-four hourly dressings for a minimum period of five days.

Sensory Effect of Wounds.—Burrows states that sudden severe wounds are at first painless and the recipient cannot always identify with precision the site of his injury. In war-time it is comforting to reflect that severe wounds are always painless until some time has elapsed after their infliction, and that by the timely use of morphine the reactionary pain may be greatly and perhaps entirely prevented. Attention is also called to the reduced sensibility and muscular power in wounded limbs. Wounds of arteries and periarterial tissues in the arm and leg are followed by a reduced appreciation of all cutaneous stimuli and a general muscular weakness in the injured limb. The area of reduced sensibility is of the glove or stocking type and at first may extend above the wound. In the course of days or hours normal sensibility returns, the proximal zones of the limb being the first to recover. Diminished feeling of this kind has some resemblance to the numbness produced by cold and needs similar tests for its recognition. A curious condition follows wounds which traverse the interosseous space of the forearm or penetrate the tissues near its ventral surface. The essential feature seems to be a permanent loss of adaptability in the hand to changes of external temperature. The hand appears slightly swollen; in warm weather it is redder than its fellow and in cooler weather it becomes cyanosed. There has been found a reduced sensitivity of the affected hand with an incapacity for accurate manipulation such as occurs in normal persons when their hands are ischemic with cold. The condition appears to be associated with a paralysis of the small blood vessels of the hand and possibly may be the consequence of sympathetic nerve injury.

Book Notices

A Textbook of Gynecological Surgery. By Sir Comyns Berkeley, M.A., M.C., M.D., Consulting Gynecological and Obstetric Surgeon to the Middlesex Hospital and the City of London Lying-In Hospital, London, and Victor Bonney, M.S., M.D., B.Sc., Consulting Gynecological and Obstetric Surgeon to the Middlesex Hospital. Fourth edition. Cloth. Price, \$14. Pp. 912, with 591 illustrations. New York: Paul B. Hoeber, Inc., [1943].

The title indicates the authors' intended purpose of the book. The first chapter is noteworthy. It refers to certain fundamental qualities and characters which every good gynecologist should possess, as for instance "The keystone of the surgeon's bearing should be self control and, while it is his duty to keep a general eye on all that takes place in the operating theater, and without hesitation to correct mistakes, he should be continually on his guard against becoming irritable or losing his temper."

The authors then spend forty-six pages describing instruments, dressings, swabs, suture materials, types of ligatures and knots and drainage. They endorse a strong solution of crystal violet and brilliant green as their first choice for antiseptic solution for both abdominal and vaginal preparations. In the event that violet green or their second choice, flavine, is not available, they would accept Dettol as a substitute. Comments and descriptions of the operating rooms and portable operating tables seem a little strange to most of the gynecologic units in the United States.

The authors have included a moderate number of colored reproductions and a profusion of drawings. The drawings emphasize the steps and pertinent points of the surgical procedure by essential lines and shadings. At first these illustrations appear bizarre and incomplete, yet they are quite adequate for the specialist and are distinctly clear when one becomes accustomed to them. A wholesome and practical philosophy appears often.

In addition to many chapters on the common gynecologic procedures and even the less common ones, a special chapter is devoted to operations on the intestinal canal. A fair consideration is given to the preoperative and postoperative care of the patients. Within the chapter on postoperative complications the "weakest" portion is found under the heading of "General and Local Peritonitis," in which diagnosis and management are disposed of in a scant four pages. Toward the end of the book the authors have listed the data on their gynecologic surgery. One cannot help but be favorably impressed with their good results.

The closing chapter, "Remote Results of Gynecological Operations," is in itself a particularly valuable contribution because it stresses the importance of consideration for the future biologic and physiologic activities of the individual, once a gynecologic surgical procedure is contemplated.

The difficulty of rewriting the fourth edition may be more evident when one considers that it has been revised and published during the peak of destruction and turmoil in the current war period. This edition should have a particular appeal and interest to the gynecologist. Moreover, it represents a most authoritative gynecologic opinion of the British Isles.

Physiology in Aviation. By Chalmers L. Gemmill, B.S., M.D., Commander (MC), U.S.N.R., Associate Professor in Physiology, Johns Hopkins University School of Medicine, Baltimore, Maryland. Cloth. Price, \$2. Pp. 129, with 18 illustrations. Springfield, Illinois & Baltimore: Charles C. Thomas, 1943.

Commander Gemmill's book presents a concise outline of the present status of aviation medicine from a physiologic point of view and is written in such a way that it is of value not only to flight surgeons but to aviators as well. The changes which a normal person must undergo in flying, such as acceleration, possible anoxia, fatigue, cold, vibration, fear and combat, and the changes in man's internal environment which are made to

meet these conditions, are well outlined. In reviewing the composition, pressure and temperature of the air in which man flies, the importance of remembering that altitudes must be expressed as pressure altitudes is stressed—that is, the actual altitude that the altimeter indicates, since the reaction of the body depends on this altitude rather than on a corrected altitude, which takes into account changes in temperature. The mechanics of respiration, gas laws and their application, properties and composition of the alveolar air and the various factors affecting this composition, the carriage of oxygen and carbon dioxide by the blood and the control of respiration—all these are fundamental factors which must be thoroughly understood by all flight surgeons. The acute and chronic effects of anoxia, aeroembolism, and a full description of various types of apparatus used in supplying oxygen to aviators are of equal importance to fliers and flight surgeons, as are the effects of acceleration on man. It is emphasized that the normal means of regulation of temperature of the body are inadequate to meet the extreme cold of high altitude, which means that either heated suits or rather bulky clothing must be worn. Lieut. Frederick B. Lee, in a chapter on instrument flight, points out the requirement for the development of entirely new reflexes on the part of the pilot doing instrument flying, and the fact that all sensations from the inner ear and deep sensibility are useless in aiding the pilot to control the airplane and must be completely disregarded in order to place complete reliance on the visual indications of the instruments.

Synopsis of Obstetrics. By Jennings C. Litzenberg, B.Sc., M.D., F.A.C.S. Second edition. Fabrikoid. Price, \$5. Pp. 405, with 157 illustrations. St. Louis: C. V. Mosby Company, 1943.

In the present edition the author has included new data which have been presented during the last three years. Among the new subjects discussed are erythroblastosis and caudal anesthesia. As in the previous edition, few of the illustrations are original. Nearly all were copied from other textbooks, many from a book on nursing. Likewise, as in the first edition, the author gives sound and practical advice all through the book. The reviewer questions the real value of most synopses, because they attempt to cover an entire subject in necessarily sketchy form. However, Litzenberg's extensive experience as a teacher makes this book a real contribution. Nevertheless, as he himself says, "the Synopsis is not designed as a substitute for more elaborate works but as a syllabus of obstetric knowledge and practice." When used with one of the standard textbooks of obstetrics, this synopsis should prove to be most helpful.

Vólvulo del estomago: Estudio clínico y radiológico. Por los doctores Prof. Dr. Carlos Bonorino Udaondo, director del Dispensario nacional para enfermedades del aparato digestivo, Buenos Aires, y Prof. Dr. Pedro A. Maissa, profesor adjunto de la Facultad de medicina, jefe del Servicio central de radiología y fisioterapia del Hospital Ramos Mejía, Buenos Aires. Paper. Pp. 176, with 47 illustrations. Buenos Aires: Aniceto Lopez, editor, 1943.

A masterly chemical and radiologic subject profusely illustrated. The authors, both professors at the University of Buenos Aires, prove in this monograph the high standards of Argentine surgery. The volume should certainly integrate any up to date surgical library.

Tomas de Aquino y la psicopatología: Contribución al conocimiento de la psiquiatría medieval. Por el Dr. E. Eduardo Krapf. 2. Monografía de "Índice de Neurología y Psiquiatría," publicadas por R. Orlando. Paper. Pp. 43. Buenos Aires: Editorial Index, 1943.

An interesting analysis of the sources of some modern trends in psychology, several of which can be traced back to Aquinas's philosophy. As the author states, the monograph is really a contribution to medieval psychiatry.

Medical Parasitology: A Laboratory Manual. By I. Jacques Yetwin, B.Sc., M.S., M.D., Medical Technologist, American Society of Clinical Pathologists. Fourth edition. Cloth. Price, \$3. Pp. 126, with 127 illustrations. Waltham, Massachusetts: The Author, 1944.

A condensed outline of a fifteen weeks course of thirty lectures covering the common parasites and venomous animals.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

BLOOD TESTS RELIABLE FOR SUSPECTED EXCHANGE OF INFANTS

To the Editor:—A relative had his baby boy born in a hospital the same day as another of about the same size and appearance. The nurses used no markings and the mothers heard them wondering if they had not exchanged the babies. The parents are much upset and took the babies, who are now a month old, to St. Louis for tests but were told it is too early before 4 months. They appeal to me about this matter. Can you give me some information, including medicolegal aspects, as well as type and reliability of tests?

M.D., Illinois.

ANSWER.—Blood tests furnish a reliable method of solving instances of suspected interchange of infants, such as the case described in the inquiry. It is not necessary to wait until the babies are 4 months old, because if suitable potent reagents are used the types can be determined accurately at birth. The tests now used routinely include the four standard blood groups and the three M-N types. These tests operate by exclusion so that, if it can be shown that one pair of parents cannot be the parents of one of the two infants, then by exclusion the other infant must be theirs. The four blood groups O, A, B and AB are inherited according to the following laws: 1. Agglutinogens A and B cannot appear in the blood of a child unless present in one or both parents. 2. Group AB parents cannot have group O children, and group O parents cannot have group AB children. The types M, N and MN are inherited under the following laws: 1. Agglutinogens M and N cannot appear in the blood of a child unless present in one or both parents. 2. Type M parents cannot have type N children, and type N parents cannot have type M children. In 1930 in Chicago a hospital case such as that described in the inquiry was solved with the aid of the four blood groups. The chances of solving such cases by the four blood groups is about 40 per cent; when tests for M-N are also made, about two thirds of the cases can be solved.

Some cases which are not solved by tests for A-B and M-N may now be solved with the aid of tests for the subgroups of A, the secreting factor, and/or the seven known Rh types. Tests for the subgroups of A offer some difficulties in newborn infants unless very potent serums are used, but after the first month the subgroups are easy to determine. Where neither parent belongs to subgroup A₁ or A₁B, none of the children can belong to these subgroups; moreover, parents of subgroup A₁B cannot have children of subgroup A₂, and A₂ parents cannot have A₁B children. Tests for the secreting factor are reliably carried out only when the individuals involved do not belong to group O. About 85 per cent of all individuals are secretors, so that their groups can be determined by tests on their saliva. If neither parent is a secretor—a rare case—none of the children will be secretors. The heredity of the Rh blood types is more complicated and is discussed in detail in a recent paper (Wiener, A. S.; Sonn, E. B., and Belkin, R. B.: Heredity of the Rh Blood Types, *J. Exper. Med.* 79:235 [March] 1944).

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- Wiener, A. S.: Blood Groups and Transfusion, ed. 3, Springfield, Ill., Charles C Thomas, 1943.
Shiff, F., and Boyd, W. C.: Blood Grouping Technic, New York, Interscience Publishers, Inc., 1942.
Harley, D.: Medicolegal Blood Group Determination, London, William Heinemann, Ltd., 1943.

CASHEW NUT OIL

To the Editor:—Will you kindly send me information regarding the effects of oxydized cashew nut oil on man. Is there any systemic effect following the inhalation of fumes of this oil or after direct contact with the skin?

Lyman Weeks Crossman, M.D., New York.

ANSWER.—All cashew nut oil as used presumably is oxidized to some extent. This substance is both an antigen and a primary skin irritant. It is reported to induce systemic manifestations after absorption, of which headache is the first feature. White states that the "Oriental cashew" is called the "Indian marking nut." He associates with it both skin blackening and the causation of skin irritation. This was confirmed by Goldsmith in THE JOURNAL, Sept. 4, 1943, in an article entitled "Dermatitis from Semecarpus Anacardium (Bhilawanol or the

Marking Nut)." Neubauer (*Zentralbl. f. Gewerbchyg.* 3:189 [July] 1926) minutely describes the cashew nut and states that it contains 10 per cent cardol, which he regards as the irritant ingredient. This author says "Cardol is taken up in the blood circulation and has a toxic effect. This explains the headache among workers with vanilla and the dermatitis sometimes encountered among laundry workers owing to the marking ink being made from cashew nuts. They may cause external as well as internal maladies, and, should their use become more extensive, steps must be taken to guard against their ill effects." On the other hand, Goldsmith denies the presence of cardol, anacardic acid, catechol or anacardol. However, he did find a monohydroxyphenol and a dihydroxy compound, C₁₅H₁₀O₂. He also notes that European physicians of repute have administered this oil internally with alleged benefits in asthma, rheumatism and certain organic neuropathies.

An outbreak of dermatitis due to cashew nut oil contained in a varnish has been recently reported (Lockey, S. D.: Cashew Nut Oil Dermatitis, *Annals of Allergy* 2:22 [Jan.-Feb.] 1944). Lockey stated that persons with an allergic background should not handle varnish that has a cashew nut oil base, although some who are mildly sensitive to the oil who persist in using it may become "hardened" to it.

INJURY OF INTERVERTEBRAL DISK FROM SPINAL PUNCTURE NEEDLE

To the Editor:—A youth aged 20 was operated on under spinal anesthesia for fistula of the anus. The postoperative course was uneventful until the patient became ambulatory two weeks later, at which time he complained of severe lower back pain. Neurologic and x-ray examinations three weeks after operation were negative. However, x-ray examination five weeks after operation showed a narrowing of the intervertebral disk opposite the site of the spinal puncture. Can a spinal puncture, even assuming faulty technic, cause a rupture of the intervertebral disk? Will a puncture with a 20 gage needle permit the material surrounding the nucleus pulposus to extrude? If so what symptoms, signs and x-ray findings may be expected from this? Is there any published work on the occurrence of ruptured intervertebral disk following spinal puncture? Are there many cases on record of spinal injury following spinal puncture?

Captain (MC), U.S.N.

ANSWER.—Intervertebral disks may be injured by the spinal puncture needle, and this injury occurs more often than is generally recognized. The fibers of the annulus fibrosus which form the posterior portion of the intervertebral disk capsule are extremely thin in the location most likely to be reached by the needle. If these fibers are punctured and a few of them cut by the sharp edge of the needle, the nucleus pulposus material which is under pressure may gradually be extruded, and in so doing the opening enlarged until a considerable amount of the disk is displaced into the extradural space. If any reasonable amount of the material is thus extruded, there will be narrowing of the disk space as demonstrated in the x-ray film and there may be pain from impingement of the extruded disk material against a posterior nerve root.

The first and most complete description of injuries of the intervertebral disk as the result of spinal puncture was by Charles N. Pease of Chicago, entitled "Injuries to the Vertebrae and Intervertebral Disks Following Lumbar Puncture" (*Am. J. Dis. Child.* 49:849 [April] 1935).

PARALYSIS OF OCULAR MUSCLE FROM STAB WOUND

To the Editor:—A patient was injured by a stab wound near the parotid gland, resulting in paralysis of the orbicularis oculi muscle of the left eye. No other paralyses were apparent. The left eye is kept closed by elevating the lower lid with adhesive tape. What should be the further treatment?

M.D., Michigan.

ANSWER.—It is unlikely that the small branch of the facial nerve which was divided in this case could be found and the ends approximated. The most satisfactory treatment in this case would probably be a plastic operation on the eyelids such as insertion of a fascial transplant. For this procedure the patient should be referred to some plastic surgeon.

ABDOMINAL PAIN AND TENDERNESS

To the Editor:—Under the heading "Tender Abdominal Aorta in Middle Age" in the Feb. 26, 1944 issue of The Journal, Dr. Joyce describes a condition which I have seen on some occasions. The complaint is solely that of abdominal pain. This pain is of a persistent and pulsating character. Tenderness is localized over the abdominal aorta. One patient, a Negro woman about 40 years of age, had a history of migraine headaches; another patient, a white man aged 70, had a history of bronchial asthma. This gives me the impression that patients manifesting this symptomatology represent manifestations of allergy or so-called abdominal migraine. Both of these cases were relieved by the administration of ergotamine tartrate 1/320 grain (0.2 mg.) at repeated intervals. This condition lasts two or three days, after which the abdominal pain disappears.

Harold N. Perelson, M.D., Huntington Park, Calif.

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PARENTAL INFLUENCE ON THE INCIDENCE OF CANCER

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BAR HARBOR, MAINE

This consideration of the process of parental influence in relation to incidence of cancer may be divided into three parts. The first of these will cover briefly the different mechanisms by which parents may influence the development of their progeny. The second will discuss the nature of cancer and the various levels or periods in the life of the individual at which the incidence of cancer may be affected or influenced. The third will briefly discuss the experimental evidence derived from animal studies in these specific fields of cancer research.

I. MECHANISMS OF PARENTAL INFLUENCE

By far the best understood and most completely analyzed mechanism of parental influence is that of the chromosomes.¹ Long recognized as being constant in number and of individual character as regards shape and size for any given species of animal or plant, their definite and detailed importance is now understood.

They are fixed organized structures which include a linear arrangement of specific concentrated chemical units called genes. These genes, probably enzymic in nature, act with sufficient regularity to give in each case a definite recognizable effect on the form or function of the organism. In some cases such an effect is great and is reflected in a profound difference in form and function. In other cases it is much more difficult to isolate and to describe the effects of a gene. There is, however, no evidence that the chemical basis for a gene that produces a great effect is any more definite or important than that of a gene that produces a less easily described effect. The degree of correspondence between a gene and a developed character is often complex. As a rule, any one character of the organism is affected by many genes and any one gene usually influences the development of more than one character.

Typical and orthodox mendelian inheritance finds its foundation and explanation in the chromosomes. Note, however, that genes must have material on which to work, with which to express the chemical potentialities which they possess. Evidently this material consists of the cells of which the individual is made and from which it is developing.

Cells consist, however, not only of chromosomes but of cytoplasm and of nuclear material other than chromatin as well as of scattered chromatin other than that organized into chromosomes. Therefore there exists the problem of discovering how autonomous and self

perpetuating the various nonchromosomal cell components may be within a cell.

That the cytoplasm plays a role in heredity far more important than has yet been recognized seems likely. It is, in fact, possible to lose whole chromosomes or to relocate parts or sections of chromosomes without basic alterations in the general characteristic morphology of an individual. This clearly indicates that some fundamental pattern of organization is located outside the chromosomes. When and how changes in this pattern occur and how they may be recorded and regulated remain an important line of investigation for the future. The difficulty of evaluating experimentally the importance of cytoplasm in inheritance is considerable. The problem is likely to require that the nucleus which would normally function be removed or inactivated. In its place there will have to be substituted a nucleus of known genetic type but of different genetic constitution. It seems probable that this will eventually be accomplished by a combination of the technic used in maintaining both fertilized and unfertilized mammalian ova outside the body with the technics of transplantation of ova and of inactivation or destruction of germ cell nuclei by irradiation. This or some other more satisfactory approach should lead eventually to important results.

It is also evident that studies of unorganized chromatin by Claude are opening an important new line of attack on intracellular relationships. No matter how striking may be the results of observation of mendelian phenomena, the whole question of inheritance will not be understood until the relation of these chromosomal findings to the role of other cell components is understood. This fact should not discourage one, but it is mentioned to show the need for further study.

Another level at which the parent may influence the developing mammal is in the period between fertilization and implantation. Since during this time there is no direct connection between parent and offspring, it seems unlikely that important transfer of influence will occur. As far as the evidence already obtained is concerned, it bears out that impression. As further experimentation develops, however, the opportunity for transfer of influence during that period must constantly be kept in mind.

Of much more prospective importance is the period from implantation of the embryo until parturition. Although no direct transfer of blood occurs from parent to offspring, the maternal influence exerted at this time has been little understood and clearly underestimated. As an example there may be cited the work of W. L. Russell and Elizabeth Fekete, as yet unpublished. In mice the normal number of sacral vertebrae is five. In one inbred strain, however, it is six. When crosses between strains with five and with six vertebrae are made, the F₁ hybrids resemble the maternal strain in number of vertebrae more than they do the paternal

From the Roscoe B. Jackson Memorial Laboratory.
1. Morgan, T. H.: *The Theory of the Gene*, New Haven, Conn., Yale University Press, 1926.

strain. Furthermore, when fertilized ova from pure five vertebra strain matings are transferred to the uteri of six vertebra strain foster mothers and there complete their development, the vertebral number of the resulting embryos resembles that of their foster mother more than it does that of their own mother's strain. This extraordinary result is a straw that shows which way the wind is blowing and indicates beyond any doubt that a careful search for maternal influences will reveal other cases of interest and importance.

The final point at which direct physical exchange between parent and offspring is possible is during the period of lactation and nursing. As a general thing this opportunity for parental influence has been overlooked. I shall, however, later discuss a case of proved importance.

To summarize the mechanisms of parental influence, there are the chromosomes and the cytoplasm of the germ cells, the postimplantation period of intrauterine development and nursing as proved mechanisms. Intracellular structures such as mitochondria and other unorganized chromatin as well as influences during the period after fertilization and before implantation remain as potential but as yet unproved mechanisms.

II. NATURE OF CANCER AND OF VARIOUS PERIODS OR LEVELS IN THE LIFE OF THE INDIVIDUAL AT WHICH THE INCIDENCE OF CANCER MAY BE AFFECTED OR INFLUENCED

This discussion will be frankly from an experimental rather than from a clinical point of view. Such criteria of malignancy as excessive rate of metastasis and invasion of surrounding or underlying normal tissues are of little basic importance in defining or in understanding the origin or nature of the cancer process. Cancer is cancer whether it is growing at the site of its origin or in tissue culture or in certain hosts in which it has been transplanted. In any or all of these situations it is a part of the living and growing tissue of the individual in which it arose. In any or all cases it is its progressive and continued power of cell division that distinguishes it from the rest of the body in which it originated.

It is well, however, to remember that cell division (growth) is the natural objective and climax of activity of the normal healthy cell. One must not forget that the protozoa are examples of a power of growth that has lasted without a break since animal life began. It is normal and basic for the cell to metabolize and to divide. It is in a biologic sense "abnormal" for it to sacrifice this basic activity and to replace it by the assumption of some specialized form of function the duration of which is definitely limited.

The mammalian body is the product of a balanced interaction of various inhibitors, regulators and selectors of growth resulting in just such cell specialization. Organization is the product of the establishment of such a balance under conditions which faithfully repeat a definite order of events. Form and function become correlated and predictable.

So true is this that one has come to think of such organisms as mammals as being normal and typical manifestations of cellular activity or of biologic processes. This point of view is a natural human conceit, excusable but undesirable nevertheless because it is not scientifically accurate.

As a matter of fact the primitive power of cell division and ability to grow is still the only known method of adequate and complete biologic survival. In this respect

cancer merely possesses and utilizes a normal and basic function of the healthy and uninhibited animal cell.

It seems entirely probable that all healthy animal cells have this ability for growth if one only knew how to release it. The usual behavior of a cell in relation to growth has come to be considered as the natural one. This is again an unwise interpretation based on subconscious satisfaction with the existing order.

In tissue culture the cancer cell is not malignant. It does no harm. It speedily and effectively outgrows most other types of cell. The only thing that makes it sinister, abnormal and an outlaw is the fact that it ordinarily arises in an environment pledged to limitation, inhibition, regulation and selective opportunity for growth. None of these things are recognized by the cancer cell, which is engaged in living independently with a high degree of primitive biologic effectiveness.

It is also common to speak of cancer originating as the result of "stimulation." This is largely because cancer appears as a contrast to the inactive and inhibited cells about it. The evidence as it exists today supports an interpretation that cancer is the result of releasing the cell from inhibition quite as much as, if not more than, it does the hypothesis of stimulation.

Artificial parthenogenesis of frog's eggs with a needle prick has been considered "stimulation," whereas it could be perhaps better described as release of some inhibitory mechanism and a demonstration of the inherent power of the egg cell to divide, for cell division without combination or conjugation with another cell is the primitive and basic form of biologic behavior.

Ultraviolet rays on the ears of rodents actually damage or kill many cells. Yet around these killed or damaged areas cells may appear to be "stimulated." Is it not much more simple to believe that the lighter exposures to ultraviolet or other radiation may disrupt or destroy the action of growth inhibitors and thus release the basic potentialities of the formerly restricted cell? Heavier doses would then destroy not only the inhibitors but the cell itself. Such an interpretation agrees with the physical description of the effects of irradiation—makes the effect of irradiation consistently a destructive process and does not require that it first be considered a stimulant and then a destructive agent.

A normal salamander completes its span of life as an orderly, organized, controlled and balanced system. Yet if a limb is removed it begins a local rapid growth to regenerate a new one. One could scarcely consider the radical injury of amputation a stimulus. Rather it results in an unbalanced growth control formerly present and releases cells which before were inhibited so that they resume primitive growth function.

One type of mammalian twin arises by the division into two parts of an embryo which up to that time had followed the usual course and rate of growth by cell division. Thereafter each half of the embryo attains a degree of growth characteristic of a complete individual. It is evident, therefore, that a latent power of growth was released by the division of the embryo. In this case it is difficult to prove or even to hypothesize the existence of "stimulation" while removal of normal inhibitions by the breaking of the usual organized control obviously has occurred.

All of this question of inhibitor release versus stimulation needs far more discussion and consideration than can here be undertaken. It will suffice to emphasize that it is more logical and satisfactory to accept the maximum rate of cell division as a standard than it is to deal with artificial norms based on various controlling

environments from which significant departures can be and are frequently made. What is "usual" in the mammalian body is not the normal, natural, functional completeness of the animal cell. Actually, cancer cells approach this condition much more closely than do their highly differentiated, restricted or specialized neighbors in the body.

Let us now consider the levels at which control of growth may be operative. By so doing one may perhaps obtain some idea of the great complexity of the problem of incidence of cancer and of the inheritable and transmissible influences which may affect it.

First is the potential rate of growth inherent in the cell itself. Woodruff's² lines of paramecia possessed characteristic differences in rate of division under identical environmental conditions. The single animal cell differed in the rate at which it completed the metabolic cycle preparatory to reorganization on the basis of two units instead of one. Furthermore, it transmitted this characteristic potentiality for growth to its cell descendants. Castle and Gregory showed that under the same conditions of environment the fertilized ova of rabbits of a large strain divided more rapidly before implantation than did the fertilized ova of rabbits of a small strain. Unfortunately, sufficient data on the rate of division of the fertilized ova of reciprocal F_1 hybrids between large and small strains are not available. Such data would do much to determine whether the difference in rate of division is cytoplasmic in nature.

Differences in rates of mitosis in tissue cultures of tumors provided with abundant food seem, however, to show that an intracellular mechanism may be concerned in the rate of cell division.

All through the process of embryonic development there exists the possibility of growth-controlling influences which may arise from interaction of cells on one another. Such influences might be general, depending on basic metabolic factors, or local, depending on the site or on the degree of nutrition of various groups of cells. As the process of differentiation proceeds, the evidence of the existence of selective, restrictive, inhibitory "organizers" increases. Rates of growth become more and more characteristic of specific tissues and organs. The endocrine glands appear to give off hormones, some of which may not interfere with regulation of growth in most parts of the body but have limited areas which they influence. Others may have a more general effect. All are immensely important in establishing and maintaining internal regulation and balance. Cyclic changes in hormone utilization may alternately release and inhibit activity of growth in localized areas. Opportunities for serious biologic disturbances in both the progressive and the regressive phases of such cycles are certain to result and have been recorded.

The rate at which and the extent to which various dietary elements are received, digested, utilized and stored or excreted also introduces a whole group of factors that materially affect growth and its control. Here again intracellular differences as well as intercellular variations may occur. Structural as well as functional changes may be involved. It would seem probable that among this group of influences, broadly interpreted, will be found the great unexplained residue of factors that determine the degree of metabolic activity which expresses itself in pigment formation and distribution and in the degree of development of many morphologic abnormalities. In this field also the effect of parent on offspring would be most obscure and

attenuated. This would follow because the opportunity for origin of individual variations in reaction would be millions of times as great as would be the chance that a parental influence could determine exactly what that response should be.

After a period of effective and balanced function the internal environment of a mammal begins its most critical experience. Complex interrelationships begin to vary or to break down as various specialized tissues and organs begin to pay the price of restricted activity and to wear out. The strong centralized control of the period of optimum organization weakens. The phenomena of "involution" is usually mentioned as being characteristic of this period, but it has always seemed that "revolution" might better express the facts. Various component cells, tissues and organs compete with one another for nutrition and naturally receive varying amounts of food. They also receive varying amounts of those regulators and inhibitors of growth which formerly sufficed to control the situation. It is not surprising that some of them break loose from these weakened central controls and begin independent growth. In all of these levels of activity, hereditary or transmissible influences may be operative. They may affect the basic power of growth within the individual cell. They may affect any phase—general or local—of the process of embryonic development. They may affect the rate and extent of origin and function of the endocrine glands and the response of tissues and organs to hormonal influence or to various dietary elements. They may affect the rate and order in which tissues and organs wear out.

When one realizes then that such influences may be exerted through the chromosomes, the cytoplasm of the egg, the secretions of the fallopian tube and the uterus before implantation, through the placenta during intra-uterine development and through the milk or other contacts during lactation, one realizes how vital it is to set up experimental conditions in which the number of variables is reduced to a minimum. Also there will develop grounds for the conviction that the methods for controlling growth and the conditions under which they are applied are so numerous and so complex that the incidence of cells or areas which break loose from that control to form cancer will be varied in time, place, extent and causation. There may be some etiologic influences more general than others, but the complete futility of expecting a single unified causative agent for all cancer is at once evident.

Complicated and difficult as the situation may appear, it is far from discouraging. It must be remembered that recognition of the elements which make up a problem is the first step in its final analysis and toward its eventual solution.

III. EXPERIMENTAL EVIDENCE

Among the cases in which chromosomal influences have been demonstrated in the causation of cancer, those dealing with carcinoma of the lung in mice are the most striking. In all such experiments on chromosomal influences it is necessary to show that the influence of the two parents on the incidence of cancer in female progeny is equal.

Lynch³ has given conclusive experimental evidence of this fact in a series of crosses between strains that differed in incidence of carcinoma of the lung. Bittner⁴ has reported a cross between two strains of mice which

3. Lynch, C. J.: *J. Exper. Med.* 43: 339-355, 1926.

4. Bittner, J. J., in *Biology of the Laboratory Mouse*, edited by G. D. Snell, Philadelphia, Blakiston Company, 1941, p. 263.

2. Woodruff, L. L.: *J. Exper. Zool.* 2: 585-632, 1905.

gave, in virgin females, no carcinoma of the lung in one strain and 90 per cent in the other. The F_1 hybrids saved as virgin females produced 87.5 per cent. The F_2 hybrids produced 67.3 per cent. He pointed out that this result coincided closely with the expectation based on the action of a single dominant mendelian gene. Heston⁵ has shown that in his material the effect of one gene was not so clear and that possibly several were involved. He was, however, able to present evidence of linkage of one and possibly of two genes which influenced the incidence of carcinoma of the lung with other known mendelian genes. This is, of course, strongly indicative of chromosomal influence.

Chromosomal influence also plays an important part in determining the incidence of lymphosarcomas and fibrosarcomas in mice. It is also a factor in the incidence of mouse leukemia, although it is not the only etiologic agent involved. Its part in causing the usual type of mammary tumors in mice seems to be relatively a small one.

One of the clearest of the ordinary mechanisms of parental influence on the incidence of cancer in mice is that of the milk in mammary tumors. In 1935 the staff of the Jackson Laboratory⁶ demonstrated a strong maternal influence in the causation of these tumors. Further studies by Bittner⁷ definitely showed that the source of the milk could fundamentally alter the incidence of mammary adenocarcinomas. Large numbers of F_1 generation hybrids in a certain cross made by Bittner⁷ brought out this fact in a striking manner. Young female mice from a mother of a high tumor strain and a father of a low tumor strain when nursed by a female of a high tumor strain gave a 95 per cent incidence of mammary tumors. Similar F_1 females fostered by females of a low tumor strain gave zero per cent. In contrast, F_1 females from a mother of "low" tumor strain and a father of "high" tumor strain nursed by a "low" strain female gave 8 per cent. When they were nursed by a "high" strain female the incidence rose to 93 per cent.

The effect of the foster mother was clear. The nature of the influence transferred from parent to offspring is, however, not so clear. It seems certain that there are morphologic differences in the mammary glands of mice of "low" tumor strain and of "high" tumor strain. Those of the latter are more extensive and also have definite groups of epithelial cells which do not respond to hormonal contacts as regularly as do the surrounding cells. These are largely absent in the former. Fostered mice show the same general type of mammary gland structure as their foster mother.

The "influence" transmitted in the milk is apparently not confined to that medium. Bittner⁸ found evidence that it could be transferred to some degree by transplants of spleen. Woolley, Law and Little⁹ have shown that it can be transmitted by inoculations of whole blood. Nursing, however, provides a natural means of transfer, which seems to show that the influence must be received through the surface of the skin and/or the digestive tract as well as by inoculation.

Evidence of an influence on the incidence of mammary tumors acting independently of lactation and exerted by the maternal parent between the period of fertiliza-

tion of the ovum and parturition has been obtained by Fekete and Little.¹⁰ It is not conclusive, but it is highly suggestive. Thus C57 black mice, a low tumor strain, when nursed by dba high-tumor females according to Van Gulik and Korteweg¹¹ and Murray¹² gave from 9 to 13 per cent of mammary tumors. Mice of the C57 stock descended from ova transferred from this strain to the uteri of dba high tumor mice and nursed by their foster mother gave tumors in 50 per cent, a striking increase. In the opposite type of transfer, dba mice fostered by C57 low tumor black mice give 11.4 per cent of tumors. On the other hand, the development of transferred dba ova into C57 mice followed by nursing C57 black foster mothers gave no tumors in 29 mice. These experiments are being continued and extended, and it is hoped that quantitative differences more exactly indicative of the degree of intrauterine influence will be definitely established.

A clear but possibly transitory effect of the influence of the foster mother on mice descended from transferred ova has also been demonstrated by Cloudman.¹³ In this case the effect was measured by the reaction of mice to transplanted tumors. This experiment was interesting in that the effect was in one direction only. For example, tumor L946, which is a fibrosarcoma originating in C57 black mice, grew in 300 mice of that strain without an exception. It also grew in all 36 C57 mice which were descendants of black ova grown in dba mice. Fifty-two pure dba mice gave 13 positive and 39 nonsusceptible animals. This is a total of 25 per cent positive. One hundred and seven descendants of dba ova grown in C57 mice gave a ratio of 55 positive to 52 negative, or 51.3 per cent positive. Using another tumor, a melanoma S91, which grew in all of 200 dba mice, Cloudman found that it also grew in all of 46 descendants of dba ova grown in C57 mice. This tumor in 52 pure C57 mice grew in 6 and failed to grow in 46, a total of 11.5 per cent positive. In 71 descendants of C57 ova grown in dba mice the ratio was 26 positive to 45 negative, or 38 per cent positive. Again, further studies are needed to determine a firm quantitative basis for analysis of the problem. The general principle seems, however, to be established in this particular material.

How much of the effect observed by Cloudman was due to intrauterine influence and how much to a lactation influence is not clear. Law,¹⁴ however, using a transmissible lymphoid leukemia of mice LL449, studied only foster nursing and found that it had a definite influence on whether or not the young so fostered would be susceptible to leukemia when they were inoculated.

Successful growth of transplanted tissue has been repeatedly shown over a period of the last thirty years by Little,¹⁵ Strong, Bittner, Gorer, Cloudman, Murray, Spangler¹⁶ and others to have a firm basis of mendelizing genes. The appearance of evidence for other than genic influences is therefore unexpected and intriguing and suggests that the complete domination of chromosomal control of parent and progeny relationships in mammals is definitely not the case under certain conditions.

5. Heston, W. E.: *J. Nat. Cancer Inst.* **3**: 79-82, 1942.
6. Staff of Roscoe B. Jackson Memorial Laboratory, *Science* **78**: 465-466, 1933.
7. Bittner, J. J., in *Biology of the Laboratory Mouse*, p. 258.
8. Bittner, J. J.: *Pub. Health Rep.* **54**: 1827-1831, 1939.
9. Woolley, G. W.; Law, L. W., and Little, C. C.: *Cancer Research* **1**: 955-956, 1941.

10. Fekete, E., and Little, C. C.: *Cancer Research* **2**: 525-530, 1942.
11. Van Gulik, P. J., and Korteweg, R.: *Proc. Nederl. Akad. v. Wetensch.* **43**: 891-900, 1940.
12. Murray, W. S.: *Cancer Research* **1**: 790-792, 1941.
13. Cloudman, A. M.: *Science* **93**: 380-381, 1941.
14. Law, L. W.: *Science* **93**: 381-382, 1941.
15. Little, C. C., in *Biology of the Laboratory Mouse*.
16. Spangler, J. M.; Murray, J. M., and Little, C. C.: *J. Nat. Cancer Inst.* **3**: 123-130, 1942.

The search for other than chromosomal strain differences which influence incidence of cancer depends, first, on the isolation and maintenance of strains homogeneous within reach as regards chromosomal genetics and differing from one another in the same respect. By using various types of crosses and thus being able to contrast genetic variation with variation in both internal and external environment acting on uniform genetic material, one can begin to get a picture of what some of the strain differences mean in a biologic or even in a chemical way.

By this sort of technic interesting differences in hormonal balance have been disclosed. Woolley, Fekete and Little,¹⁷ by early gonadectomy in three different strains of mice, have found three distinct and characteristic responses on the part of the adrenal glands:

In strain C57 black the mammary tissue remained rudimentary, secondary sex characters were typical of castrates and the adrenal glands showed no particular change in size and in form. The vagina remained closed or with a delayed and minute opening.

In strain dba, the mammary tissue after some months of inactivity began to develop. The uterus also increased in size and improved in muscular tone, and the vagina opened normally at the usual time. The adrenal glands showed both hypertrophy and hyperplasia in the cortex. The submaxillary glands, a rather delicate barometer of sexual differentiation, became of the "female" type. Some mammary tumors were formed in both sexes of gonadectomized animals.

In strain CE, after a period of quiescence, the submaxillary glands swung to the male type and mammary tumors were not formed, but hyperplasia of the adrenal glands continued until it produced cortical carcinomas of that gland. These carcinomas were themselves "androgenic" and were able to produce "masculinizing" effects even when transplanted into mice other than the one in which they originated.

To revert for a moment to the discussion of stimulation versus removal of inhibition, it is hard to see how gonadectomy could after months of inactivity "stimulate" the adrenals. It is much easier to imagine the gonads as normally exerting an inhibitory reaction on adrenal growth and to expect that the absence of this inhibiting influence would allow the adrenal glands to express perhaps a characteristic hormonal level of the strain in the older age groups. Continuation and extension of this type of experiment may do much to help the analysis of the factors that produce internal environmental balance. From that point one might be able deliberately to produce types of unbalanced hormonal influences which would reveal new relationships.

Such differences as those described are now being investigated from a genetic point of view. They naturally provide a new order of variation with which to work, for if a controlled but abnormal internal environment had not been created the differences between the strains would not have appeared.

Other technics have been combined and used to disclose biologic differences which would otherwise have remained hidden. One of these is parabiosis, or the fastening together of two individuals by surgical operation. This technic has been used with interesting results by Cloudman¹⁸ in studying the reaction of mice to a

transplantable tumor, C198. This tumor is probably a reticuloendothelioma and was first found in the liver. Its growth is ordinarily restricted to the stock in which it originated. If, however, animals of that stock are used as parabionts with a nonsusceptible stock and are inoculated with the tumor, they transfer their susceptibility to their ordinarily nonsusceptible parabiont partner. Various interesting tendencies of certain organs in hybrids produced by Cloudman to become the site of growth of tumor implants cannot be considered in detail here because of their complexity. It may, however, be stated that parabiosis, like early castration, is an unusual and important method of placing the organism in an environment which overthrows the ordinary internal balance; it thus reveals differences between inbred strains and their hybrids which can be used for further analysis of how the normal balance is created and maintained.

In order to visualize and summarize the vehicles of transmission of parental influence and the levels at which they may operate, they may be presented as in the accompanying tabulation. Any vehicle of parental influence may theoretically operate at any of the listed

Transmission of Parental Influence

Vehicles of Parental Influence	Levels of Potential Activity of These Influences
1. Chromosomes	1. Rate of growth inherent in cell
2. Cytoplasm of germ cells	2. Embryonic development (a) local (b) general
3. Other intracellular structures	3. Origin and function of endocrine glands
4. Preimplantation period of development	4. Response of tissues to hormonal influence
5. Postimplantation period of development	5. Response of tissues to dietary influence
6. Nursing	

potential levels and thus produce a large number of different possible combinations of biologic processes.

I might go on citing examples of the steadily growing mass of interesting evidence that is being derived from the invasion of the inner environment of mammals of controlled genetic constitution by experimental technics which distort or upset the balance of that environment at times and in places where the organism has formerly completely controlled it. The most that one can do now, however, is to block out, as I have attempted to, some of the newer and more suggestive fields where biology is using genetic methods and experimental physiologic alteration of the internal environment as alternating weapons to drive knowledge further into the processes of origin, maintenance and operation of that remarkably balanced organization, the mammalian body.

Unfortunately the eyes, on which one usually so greatly relies, cannot invade that living system. By utilizing inbred strains whose reactions are to a high degree constant, one can, however, make that constancy an ally and use it to reveal in clearcut contrast to the normal the results of such additions or subtractions of substances and material, either chemical or biologic, which one wishes to make.

Already enough has been seen to inspire confidence in this method. A vast amount of territory remains to be covered. The final campaign is far from being finished. From the beach head now held, however, one may expect continued and fascinating progress with increasing speed and of greater significance in the future.

17. Woolley, G. W.; Fekete, E., and Little, C. C.: *Proc. Soc. Exper. Biol. & Med.* **45**: 796-798, 1940; *Science* **97**: 291, 1943.

18. Cloudman, A. M.: *Cancer Research* **3**: 47-52, 1943.

POSTMENOPAUSAL BLEEDING AS A HAZARD OF DIETHYLSTIL- BESTROL THERAPY

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An important contribution to the management of certain functional gynecologic disorders was the introduction of diethylstilbestrol (stilbestrol), and this highly estrogenic nonhormonal drug is achieving increasingly wide employment. Its indications and likewise its limitations are in general those applying to the natural estrogenic hormones, and, like the latter, its most extensive application has been in the treatment of the vasomotor symptoms of the menopause. When such symptoms are sufficiently severe to constitute a troublesome problem, the resort to estrogens, including diethylstilbestrol, is rational and the results are good.

This is not the place to review the whole problem of the management of menopausal women, to emphasize that estrogenic therapy is only a part of this management or to weigh the advantages and disadvantages of diethylstilbestrol as compared with the natural estrogens, or the so-called conjugated and synthetic estrogens. The fact remains that diethylstilbestrol is extensively employed and that in most cases it has many advantages over the natural estrogens, the chief of these being its relative cheapness as compared to the latter, and its greater degree of effectiveness when given by the convenient oral route. The fact that in a certain proportion of cases its use is not possible because of disagreeable though not dangerous toxic symptoms is of course a disadvantage, but this proportion is far less than the high figures, as high as 80 per cent, originally reported by some observers. In my own experience the figure would be from 10 to 15 per cent, and this appears to be about the average noted by most gynecologists.

My purpose in this short communication is to warn against indiscriminate and excessive dosage with diethylstilbestrol especially in the menopausal group of cases, because of the frequency with which this produces abnormal uterine bleeding. Vasomotor symptoms are usually most pronounced after menstruations begin to be skipped or when the function has apparently ceased altogether. The improper use of diethylstilbestrol in such cases, while giving relief to the flushes and sweats, brings about a return of bleeding which will disturb both physician and patient. The natural and proper suspicion in cases of postmenopausal bleeding is of cancer of the uterine body, assuming that examination has ruled out vaginal, cervical or adnexal lesions. Such a suspicion will usually impel the gynecologist to subject the patient to diagnostic curettage.

As a matter of fact, if sufficient diethylstilbestrol or, for that matter, any other estrogen should be given, such disconcerting bleeding would be the rule and not the exception. There seems to be no doubt that the risk in this respect is greater with diethylstilbestrol than with the natural estrogens, probably because of its higher estrogenic potency rather than because of any qualitative difference in its effect on the endometrium.

The bleeding in these cases is obviously the result of drops in the estrogenic level, occurring most characteristically after temporary withdrawal of the drug but not infrequently noted even when the use of the estrogen has been continuous over a long time. As in all other hormone reactions, there are definite indi-

vidual variations in different endometria as regards sensitivity to estrogenic stimulation. It is difficult, therefore, to set arbitrary figures for safe dosage from this standpoint.

There are, however, certain simple practical safeguards which can be taken and which have been violated in an increasingly large number of instances of postmenopausal bleeding cases which have come under observation following the employment of diethylstilbestrol. A considerable number of rather flagrant instances of this sort have come under my own observation during the past two years. What is said here of diethylstilbestrol applies to other forms of estrogenic therapy as well, though perhaps to lesser degree. The logic of all such treatment is based on the fact that the unpleasant symptoms arise because of the diminution and final cessation of ovarian function. It should be remembered, however, that the hormonal equilibrium tends to adjust itself spontaneously after a variable time, with disappearance of the symptoms. When the latter are absent or slight, no substitutional estrogenic therapy is necessary, and nature may be allowed to take its course. When the symptoms are sufficiently accentuated, estrogenic therapy will almost always give relief, but only enough should be given to control the symptoms. There is even some reason to believe that too prolonged treatment may postpone the desired reestablishment of the equilibrium; that is, that the duration of the menopause may be increased.

The prophylactic use of estrogens, advocated by some, has always appeared to me to be highly illogical, and unnecessary for reasons embodied in the foregoing remarks. When the drug is used therapeutically, the dose should be based chiefly on the severity of the symptoms, average daily extremes varying from 0.1 mg. to 0.5 mg. Only rarely are larger doses necessary. Furthermore, since the effects are fairly prompt, the dosage often is necessary for only a short time, sometimes for only a few days, especially since the tendency of the symptoms is to occur in exacerbations.

The most prevalent abuse in the employment of diethylstilbestrol is to prescribe a routine daily dose to be taken more or less indefinitely. There should be no such thing as a routine dose or, as it is even spoken of, maintenance dose. I have recently seen a patient whose original vasomotor symptoms were very moderate but who had been given a supply of 5 mg. tablets for nightly use and who, when I saw her, had already taken over 250 doses. In addition to postmenopausal bleeding she exhibited a high degree of nerve tension not unlike that characterizing the so-called premenstrual tension. I have seen similar tension produced by long continued and excessive dosage with natural hormone preparations.

Every gynecologist has encountered many patients who, after a wrong start, have convinced themselves that unless they have a "shot" of one or other estrogenic preparation dire results will follow in the form of exaggerated symptoms. This species of hormone addiction is psychologic rather than pharmacologic. Unless properly advised by the physician, the patient can fall into similar habits with diethylstilbestrol, although the temptation with oral administration is probably not so great as with the more glamorous "needle treatments," of which some patients are so proud.

While postmenopausal bleeding of the type under discussion is most often due to faulty methods of dosage and administration, it may at times be noted

after relatively low dosage. In such cases it is wiser to resort to the natural hormone preparations or to one of the conjugated or synthetic hormones. In the occasional case in which the endometrium appears abnormally sensitive to estrogens one might prefer to employ testosterone, which is effective in the relief of the flushes, without the risk of producing bleeding.

As to the management of the postmenopausal bleeding which may follow estrogen therapy, this must be based on the circumstances of the case, and it cannot always be the same. When the bleeding occurs in women known to have gotten large amounts of diethylstilbestrol, simple discontinuance of the drug is usually wiser than immediate resort to diagnostic curettage. This conservative policy should entail no worthwhile risk to the patient if she is kept under observation. On the other hand, if the dosage of the drug has been modest, or if it is not known, the hazard of a "post hoc, propter hoc" assumption would be greater, and diagnostic curettage will usually be the wiser plan.

I have had the opportunity of studying the endometria in a small group of cases in which bleeding had followed diethylstilbestrol therapy, and the prevailing picture, as one would expect, has been that of benign hyperplasia. Since hyperplasia is a not uncommon finding even in women who have had no estrogenic therapy, one cannot in all cases be sure that such a picture after diethylstilbestrol therapy is the direct result of the latter. Repetition of the biopsy sometime after discontinuance of the diethylstilbestrol would be more conclusive on this point, though not usually necessary on purely clinical grounds. In 1 of my own cases such a follow-up study was clearly indicated and proved instructive:

A woman aged 49 had had x-ray induction of the menopause four years previously because of functional bleeding. One year ago, because of menopausal symptoms, a daily dosage of 1 mg. of diethylstilbestrol was begun and kept up until one month previously, when the drug was stopped because of gastrointestinal disturbance. Five days later there was a bloody discharge, lasting one day. She was curetted, the slide showing a typical hyperplasia, although a local pathologist had diagnosed adenocarcinoma. The suggestion was made that the curetting be repeated in a month, with of course no further diethylstilbestrol therapy. The tissue from the second curetting showed a typically retrogressive postmenopausal endometrium.

There has been considerable discussion as to whether or not excessive therapy can actually incite the development of cancer. Without reviewing this very broad problem, suffice it to say that the consensus is that no such hazard pertains to the clinical employment of estrogens in any customary therapeutic dosage. Since our knowledge of the possible carcinogenic role of the estrogens is still very incomplete, it is a wise policy to avoid unnecessarily large doses and to avoid such treatment altogether or hold it to a minimum for persons who harbor any so-called precancerous lesion or those who have a clearcut family history of cancer.

The not infrequent occurrence of estrogen induced proliferative and hyperplastic changes in women well beyond the menopause is well established (Novak and Yui,¹ Novak and Richardson,² Taylor³). The source of the estrogen after regression or removal of the ovaries is believed to be the adrenal cortex. The fact that postmenopausal hyperplasia is not infrequently asso-

ciated with adenocarcinoma would suggest at least a predisposing role for postmenopausal estrogenic stimulation of the endometrium and should indicate the wisdom of avoiding prolonged and excessive estrogen therapy after cessation of ovarian function.

SUMMARY

While diethylstilbestrol is of the greatest value in the treatment of troublesome menopausal symptoms, it has certain disadvantages. One of these, which has been much less stressed than its importance warrants, is the production of postmenopausal uterine bleeding, often leading to the clinical suspicion of cancer and not infrequently calling for diagnostic curettage.

The risk of producing such undesirable bleeding can be held down to a small minimum by a few simple precautions. The chief of these are (1) to avoid altogether the use of diethylstilbestrol or any other estrogen unless the symptoms are clearly menopausal and unless they really constitute a problem to the patient, (2) to avoid so-called prophylactic estrogenic therapy, (3) to avoid unnecessarily large doses and (4) to avoid any routine fixed dosage for prolonged or indefinite periods, resort being made to the drug only if and when needed.

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THE NATURAL COURSE OF POLIOMYELITIS

A REPORT OF 70 CASES

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Following the first 10 cases of poliomyelitis in Louisiana¹ in 1841 there were a few small outbreaks scattered throughout the United States. Except for Caverly's report of 132 cases which occurred in Vermont in 1894,² these cases were neither sufficiently numerous nor well enough studied to assume much importance, and it was not until the first major epidemic in 1907³ that the disease began to attract much attention in this country. This epidemic followed by two years the big Scandinavian outbreak and was thought to have been stimulated by increased immigration to this country.¹

Since 1907 poliomyelitis has been constantly in evidence, and every year sees its epidemic. Reports have been numerous and, though few of them are detailed enough to be statistically valid, together they bring out a few obvious basic facts. Since consideration of these seems lately to have been abandoned in favor of philosophic controversy, it would seem appropriate to mention them again.

It was Wickman who first called attention to the high incidence of nonparalytic poliomyelitis, which, after studying 1,025 European records, he conservatively estimated at 25 to 56 per cent of all cases.³ This group, which varies with the epidemic, obviously affects the recovery rate, and no appraisal of results of any treatment can be made without an accurate statement as to the number of cases which were of this type.

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Support of hospital beds for patients in this study was furnished by the Home for Destitute Crippled Children, affiliated with the University of Chicago.

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It has also been known for years that epidemics vary not only as to geographic location but also as to the attack rate, the severity of general symptoms, the incidence of bulbar involvement, the incidence and severity of paralyses and, of course, the mortality. Thus in Scandinavia in 1905 there was a death rate of 15.7 per cent in 1,445 cases.³ In New York City in 1916 there were 8,991 cases with a 25 per cent mortality.¹ Sydney, Australia, in 1937 had 252 cases with a death rate of less than 1 per cent.⁴ In San Antonio in 1942 there was a mortality of 6.9 per cent in only 87 cases.⁵ In general the death rates in recent years have been always lower than in the older epidemics. This appears to be due to recognition of abortive cases, which formerly were not usually reported even when recognized.

Until recently there has never been any disagreement with the idea that the percentage of recovery, depending as it does on the factors just outlined, also varies with the epidemic rather than with the treatment. This is borne out by reports from many locations. In the 1937 Queensland, Australia, epidemic 100 of 147 patients had no loss of function.⁶ The same year in Sydney 179 of 250 patients were completely cured.⁴ Ogilvey says, after studying the Brooklyn cases of 1916, "The percentage may be expected to be, . . . excluding those who died, 49 per cent paralyzed and 51 per cent nonparalyzed."⁷ This agrees well with Wickman, who examined 605 of his paralytic patients eighteen months after their acute disease and found 44 per cent to have recovered completely.³ A paper on the Kansas epidemic of 1923 is even more optimistic and estimates that with good care "from 75 to 85 per cent of the cases will show marked improvement or complete recovery."⁸ In Michigan in 1931 there were 124 cases, in which there were 83 complete recoveries (it is to be noted that 77 of these were nonparalytic).⁹ In the Los Angeles epidemic of 1934, when there were over 1,800 cases, complete recovery in 80 per cent had occurred in less than a year.¹⁰ "In 1941 in Maryland 68 per cent of the patients recovered and 14 per cent more have a slight residual weakness. Only 2 per cent have complete disability."¹¹ In the same year in Pennsylvania there were 741 cases, of which 56 ended fatally; 54 per cent of the survivors recovered without residual weakness, 19 per cent of whom were nonparalytic and 35 per cent of whom made a spontaneous recovery from paresis.¹² Manitoba that year had 966 cases with 1.8 per cent deaths, and in only 10 per cent of all cases was there residual weakness.¹³ In all of the groups just quoted the so-called orthodox treatment was used with whatever personal variations suited the physician, and no significant differ-

ence can be seen to be related to the type of therapy employed.

There have been a few attempts to evaluate statistically the percentage recovery of paralyses under slightly differing forms of therapy. Rogers reports 282 cases treated at the Hospital for Ruptured and Crippled with three different "orthodox" methods, and no difference in amount or rate of recovery was noted.¹⁴ Henry and Johnson, writing of 728 cases in Philadelphia in 1932, report 605 that were examined about nine months later. At that time 265 (43.8 per cent) of the patients, 128 of whom had had paresis, were entirely normal; 248 (41 per cent) still had some weakness, and 12 (2 per cent) were totally paralyzed. There were 13.2 per cent deaths.¹⁵

The report of McCarroll and Crego has been widely quoted by the supporters of Miss Elizabeth Kenny as proof that under the "orthodox treatment" only 12 per cent of recoveries can be expected.¹⁶ But the 160 cases reported were all paralytic and therefore the complete recovery of 12 per cent cannot be compared to the recovery rate of a group which includes also the nonparalytic.¹⁷ From a perusal of these reports one may conclude with Schein that "the general outlook in paralytic cases, even of the greatest severity, is never so bad as frequently pictured, and one may be fairly optimistic about the ultimate outcome of the ordinary case."¹⁸

Since the advent of Miss Kenny on the American scene in 1940 most of our literature has dealt with the use and abuse of her method of therapy. When the medical advisory committee of the National Foundation for Infantile Paralysis recommended in 1941¹⁹ that her treatment be made available to the country, there resulted numerous articles on the subject. Many of them are mere statements of opinion, such as the following: "There is no doubt that her treatment abolishes pain and stiffness and minimizes the occurrence of deformities. It prevents contractures, lessens the degree of paralysis, and . . . produces a higher percentage of recoveries than any other method. . . . The Kenny treatment is one of the most outstanding advances in orthopedic surgery since the time of Hugh Owen Thomas and Robert Jones."²⁰ Several papers, such as those of Deacon²⁰ and of Garceau, Martz and Reith,²¹ offer equally enthusiastic conclusions in spite of a complete absence of recorded data.

There are a few reports of small groups of cases such as those of Daly²² and Bingham.²³ Not only do these papers fail to classify their cases as to initial involvement, but their descriptions of end results are extremely vague evidence on which to conclude that the Kenny method is the therapy of choice. In a paper from San Antonio on the 1942 epidemic, more details are given. There were 87 cases, 6 of which were fatal. Of the 81 survivors 30 are listed as completely cured,

4. Hamilton, D. G.: Acute Anterior Poliomyelitis: A Review of 250 Cases in Sydney During the 1937-1938 Epidemic, *M. J. Australia* 1: 148 (Feb. 3) 1940.

5. Stuck, W. B., and Loiselle, A. O.: The 1942 San Antonio Poliomyelitis Epidemic, *J. A. M. A.* 122: 853 (July 24) 1943.

6. Modern Methods for the Treatment of Infantile Paralysis, report of the Queensland Royal Commission, *M. J. Australia* 1: 187 (Jan. 27) 1938.

7. Ogilvey, C.: A Report of a Group of 110 Cases of Poliomyelitis, *J. A. M. A.* 69: 691 (Sept. 1) 1917.

8. Dively, R.: A Study of the 1923 Epidemic Anterior Poliomyelitis in Kansas, *J. A. M. A.* 84: 85 (Jan. 10) 1925.

9. Cowie, D. M., and Lowenberg, K.: Clinicopathologic Observations on Infantile Paralysis: Report of 125 Acute Cases with Special Reference to the Therapeutic Use of Convalescent and Adult Blood Transfusions, *Ann. Int. Med.* 8: 521 (Nov.) 1934.

10. Mcals, R. W.; Hauser, V. F., and Bower, A. G.: Poliomyelitis: The Los Angeles Epidemic of 1934, *California & West. Med.* 43: 123 (Aug.), 215 (Sept.) 1935.

11. Lenhard, R. E.: The Results of Poliomyelitis in Baltimore, *J. Bone & Joint Surg.* 25: 132 (Jan.) 1943.

12. Gill, A. B.: The Kenny Concept and Treatment of Infantile Paralysis, *J. Bone & Joint Surg.* 26: 87 (Jan.) 1944.

13. Donovan, C. R., and Bowman, M.: Some Epidemiological Features of Poliomyelitis and Encephalitis, Manitoba, 1941, *Canad. Pub. Health J.* 33: 246 (June) 1942. Adamson, J. D., and Dubo, S.: A Clinical Study of Acute Poliomyelitis, Manitoba, 1941, *ibid.* 33: 259 (June) 1942.

14. Rogers, S. P.: Recovery from Infantile Paralysis During the First Year, *Am. J. Surg.* 26: 326 (Nov.) 1934.

15. Henry, J. N., and Johnson, G. E.: Acute Anterior Poliomyelitis in Philadelphia, *J. A. M. A.* 103: 94 (July 14) 1934.

16. Cole, W. H.; Pohl, J. F., and Knapp, M. E.: The Kenny Method of Treatment for Infantile Paralysis, Publication 40, New York, National Foundation for Infantile Paralysis, Inc., 1941.

17. McCarroll, H. R., and Crego, C. H.: An Evaluation of Physiotherapy in the Early Treatment of Poliomyelitis, *J. Bone & Joint Surg.* 23: 851 (Oct.) 1941.

18. Schein, A. J.: Orthopedic Aspects of Poliomyelitis, *New York State J. Med.* 37: 1661 (Oct. 1) 1937.

19. Lewin, P.: The Kenny Treatment of Infantile Paralysis During the Acute Stage, *Illinois M. J.* 81: 281 (April) 1942.

20. Deacon, A. E.: The Treatment of Poliomyelitis in the Acute Stage, *Canad. Pub. Health J.* 33: 275 (June) 1942.

21. Garceau, G.; Martz, C., and Reith, P.: The Kenny Treatment of Infantile Paralysis, *J. Indiana M. A.* 35: 677 (Dec.) 1942.

22. Daly, M. M. I., and others: The Early Treatment of Poliomyelitis with an Evaluation of the Sister Kenny Treatment, *J. A. M. A.* 118: 1433 (April 25) 1942.

23. Bingham, R.: The Kenny Treatment for Infantile Paralysis, *J. Bone & Joint Surg.* 25: 647 (July) 1943.

but it is noted that 25 were nonparalytic; 16 had "slight weakness," 12 "moderate weakness" and 17 "severe weakness."²⁴ For some reason these were interpreted as better than average results. Coon, writing in 1943, again sedulously avoids any details but says that 22 out of 29 cases were benefited by Kenny therapy and makes the following startling conclusion: "When the older method of treatment is being used, contractures are noted and cause difficulty when the plaster casts are removed. When the Kenny method is used, contractures do occur in paralytic cases but are not due to the use of casts."²¹

Dyson, in analyzing the treatment of 39 patients in 1942 at Kenny Cottage in Des Moines, reports one year later that 28 were entirely well. Three had slight limps, 2 walked with "Kenny sticks" and 4 were still in the hospital. Of these 4, 2 were able to take a few steps and 2 were totally paralyzed but could sit up. Excluding the 4 who were still hospitalized at that time, the average hospital stay was 61.1 days.²⁵

There remain the analyses of Miss Kenny's own cases in this country. She herself says in 1942 that she has treated "a total of 84 in the acute and early stages of the disease. Out of this number 8 lower limbs will have residual paralysis and 2 upper limbs—1 upper limb with good recovery but not normal. This would mean over 80 per cent full recoveries." And later "I can claim that the condition of muscle paralysis from the disease can be reduced from 80 per cent paralyzed to 20 per cent paralyzed in the extremities and from almost 100 per cent residual paralysis of the abdominals to 100 per cent recoveries in this group."²⁶

In two papers which purport to analyze the 26 cases in Miss Kenny's first Minnesota group there is little agreement. The earlier paper, which gives no data as to type of case but outlines the treatment in detail, offers this summary: "To date 26 patients with acute anterior poliomyelitis have been treated. . . . Eleven have already been discharged as completely normal. The average hospital stay of these patients was 36.2 days. Of the remaining 9, 1 has paralysis of both legs which will probably be permanent. . . . The other 7 are progressing satisfactorily but it will take time to estimate their final recovery."²⁷ The later paper, describing the same 26 patients, concludes as follows: "At the end of eighteen months after beginning the Kenny treatment of a series of 26 patients in the acute and subacute stage it can be stated that these patients have all made a far more satisfactory recovery than they would have made by any previously known method."²⁸ The paper fails to make the following conclusions, which may be drawn from the data included in the body of the paper:

Of the 26, only 10, or 38.4 per cent, are listed as normal after eighteen months. Six of these 10 were either nonparalytic or bulbar patients with no peripheral paralysis. The hospital stay of these patients, some of whom were still institutionalized at that writing, is listed in detail, and, according to the figures presented, averages 179.5 days. The shortest stay was twelve days and the longest eighteen months. It is noteworthy that 1 nonparalytic patient was hospitalized for ten

weeks. This hardly seems to support the claim that the Kenny method is saving of time, money and hospital days.

Because of the divergence of opinion noted and because of the recent disregard of the natural history of poliomyelitis cases, it seems appropriate to present an account of experiences in the epidemic of 1943. It is true that nothing new is offered and that other such series may be found in the literature. I hope only to call attention once more to the fact that the amount of ultimate recovery from acute poliomyelitis depends primarily on the amount of initial involvement of the central nervous system.

The Chicago poliomyelitis epidemic of 1943 presented the unusual opportunity of following a group of 70 unselected patients through the entire course of their acute disease and of supervising carefully their subsequent care. This paper comprises a report of the 1943 group six months after their acute attack. Obviously this is too short an interval to permit a conclusive study. However, it can surely be assumed that the nonparalytic will not change, and since all the other survivors of this group seem now to be

TABLE 1.—Type of Cases

Total number of patients.....	70
Males.....	36
Females.....	34
Bulbar involvement alone.....	9 (13.0%)
Bulbospinal involvement.....	9 (13.0%)
Spinal paralysis.....	39 (55.5%)
Nonparalytic.....	13 (18.5%)

TABLE 2.—Age Distribution

Under 2 years.....	6
From 2 to 5.....	10
From 5 to 10.....	26
From 10 to 15.....	16
Over 15.....	12

stationary or progressing satisfactorily it is unlikely that future examinations will reveal much change except for improvement.

Of the 70 patients 36 were males and 34 females. The distribution of cases as to age and type is shown in the first two tables.

All patients received the same general treatment, which was essentially that required by any acute febrile disease. After a spinal puncture (which was postponed in all bulbar cases and on a few very ill paralytic patients) they were kept at absolute bed rest with as nearly normal a diet as possible and with adequate fluids given parenterally when necessary. They were disturbed only for rapid physical examinations, and often these were done several times daily. These examinations apparently had no effect on the extent or duration of muscle weakness. Bulbar patients were given nothing by mouth, had constant suction and oxygen via nasal catheters, postural drainage and all fluids parenterally. The respirator was used only for intercostal weakness, which was significant in 3 cases. Fifty-three of the patients received convalescent or adult blood serum in accordance with the program of the Illinois State Public Health Service. No specific effect from the administration of the serum was observed.

"Kenny" packs, splints or special apparatus were not used. As "spasm" and stiffness of the back and hamstrings appeared to be present in all cases, and since they seemed of no significance except as symptoms, no

24. Coon, H. M.: The Wisconsin Experience with the Kenny Treatment Methods, Wisconsin M. J. 42:783 (Aug.) 1943.

25. Dyson, J. E.: The Kenny Treatment in Acute Poliomyelitis, J. Iowa M. Soc. 33:375 (Aug.) 1943.

26. Kenny, E.: Infantile Paralysis: Importance of Treatment in the Acute Stage, New York State J. Med. 42:1645 (Sept. 1) 1942.

27. Cole, W. H., and Knapp, M. E.: The Kenny Treatment of Infantile Paralysis, J. A. M. A. 116:2577 (June 7) 1941.

28. Fohl, J. F.: The Kenny Treatment of Anterior Poliomyelitis (Infantile Paralysis): Report of the First Cases Treated in America, J. A. M. A. 118:1428 (April 25) 1942.

treatment was directed toward them. These manifestations disappeared spontaneously in every case within a few weeks.

Patients were discharged as soon as they were definitely convalescent even though the quarantine period was not yet over. The average time of hospitalization for nonfatal cases, 17.9 days, is analyzed in table 3. On discharge from the hospital all patients were given careful instructions as to their bed care at home and were subsequently followed at short intervals in the outpatient department. The nonparalytic and patients with mild weaknesses were given no further treatment.

Seven patients who had severe weakness had their early activity supervised by physical therapists in the hospital. Physical activity was instituted as soon as fever and pain had subsided. Instruction consisted in early active exercise under water until the patients could do more with comfort. Then as rapidly as possible they were got up and encouraged in normal use of the extremities without attempting education of individual muscles but with constant emphasis on function of the body as a whole. Special attention was given the development and maintenance of proper gait.

TABLE 3.—Time of Hospitalization

Nonparalytic	13.0 days
Bulbar and bulbospinal	17.4 days
Paralytic (original admission only)	19.9 days
Paralytic (including readmission for physical therapy)	23.0 days
Average without fatal cases	17.9 days
Fatal cases	3.5 days

TABLE 4.—Results

1. No detectable weakness at any time	13 (18.5%)
2. Those who had paresis but who are not now handicapped	38 (54.3%)
a. No detectable weakness now	7
b. Functionally insignificant weakness (including isolated palatal imbalance)	31
3. Functionally significant weakness but requiring no further therapy	6 (8.6%)
4. Severe weakness requiring braces or surgery	7 (10%)
5. Deaths (4 bulbar, 2 spinal)	6 (8.6%)

The current status of the group is shown in table 4. Group 1 includes the 13 so-called "nonparalytic."²⁹ These patients all had the clinical signs of poliomyelitis and had an elevated cell count in the spinal fluid, but at no time did they have any demonstrable weakness or reflex change. They all made an uneventful recovery and have since remained perfectly normal.

The 38 patients in group 2 all had easily detectable weakness. Of these 25 had initially mild involvement, which was not expected ever to be significant. Thirteen of these patients had severe involvement. One had an almost flail right shoulder. The remaining 12 were patients with bulbar poliomyelitis, 3 of whom had complete dysfunction of palatal and pharyngeal muscles but no further involvement. Three of the others had such severe weakness of the entire shoulder girdle and of all neck flexors that they could not sit up or use either arm. Four had severe enough involvement of one lower extremity so that they could not stand. Two had pronounced left facial palsies, and 1 had weakness of the entire right side. All of these pareses were profound, but no patient had a complete paralysis. Five patients from the initially mild group and 2 from the severe group now have no detectable weakness. Every 1 of the other

31 is now back doing whatever he did before his illness, is without symptoms, and is without any handicap except that 3 of those who had bulbar weakness have occasional slight difficulty in swallowing, and 1 of them has a facial palsy which, while it is improving continuously, is still obvious.

The 6 patients in group 3 have pronounced weaknesses, which however do not require further care and which do not interfere with their leading a normal life. One of them had extensive involvement of the right shoulder. He now has easily detectable weakness but can use the arm for ordinary activity, is steadily improving and is expected soon to be in group 2. Three of this group had profound involvement of both lower and one upper extremity, and 1 had severe paresis of one lower extremity. These 4, all of whom are adults, now show only moderate weakness of one lower extremity, all are walking without any support and with only slight limps, and all are continuing their usual occupations without difficulty. The other patient in this group had initially an extremely severe quadriplegia with enough involvement of every muscle in all extremities so that she was expected to be bedridden or at least confined to a wheelchair. She is now back in regular school with weakness, it is true, in most of her muscles, but walking without a limp and able to keep up with the other children without special privileges.

In group 4 are the 7 patients who are handicapped and will need surgery or braces. One of these has a weak foot and will need a stabilization operation. Another who had a severe quadriplegia with intercostal involvement has very weak shoulders and a weak hand but is able to attend regular school. He will probably later be improved by a shoulder fusion and an opponens plasty. Each of 3 children had one flail arm. One of these has improved and will be further benefited by shoulder arthrodesis. Two patients are wearing braces. One of these, a woman who later went elsewhere for hot pack treatment, has flail lower extremities and is reported now to be on crutches with two long leg braces. The other, who has one flail lower extremity, is now walking unsupported except for a long leg brace. He has resumed his normal school activities.

In group 5 are listed the six deaths, a mortality rate of 8.6 per cent. Two of these patients had rapidly ascending paralyzes and 4 had bulbar involvement. Of the latter, 2 were moribund on admission. It may be noted that four deaths among 18 bulbar cases is a low mortality rate. Levinson says "It is seen in this group of 50 patients that there was a mortality of 42 per cent. This is a relatively low figure, because experience teaches that superior poliomyelitis is attended by a mortality varying from 60 to 80 per cent."³⁰

SUMMARY

Of a group of 70 patients with acute anterior poliomyelitis, which except for supportive therapy was allowed to run its natural course, 10 per cent have enough residual weakness to require braces or future surgery, 72.8 per cent have no residual weakness or such slight weakness that it is barely detectable, and 8.6 per cent have functionally significant weakness which does not require further therapy and which does not constitute a handicap to a normal life. There were six deaths (8.6 per cent). The average hospital stay, excluding the fatal cases, but including readmissions for supervised physical activity, was 17.9 days.

29. By this term is meant the patient in whom one is unable to demonstrate muscle weakness. It is not implied that there is no damage to the central nervous system but only that there is no objective motor sign of such damage.

30. Levinson, S. O.: A Five Year Review of Anterior Poliomyelitis in the Chicago Area, Illinois M. J. 70:296 (Sept. 1) 1936.

RELATIVE TOXICITY OF SULFAMERAZINE AND SULFADIAZINE

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Sulfamerazine (monomethylsulfadiazine) was synthesized by Roblin and his co-workers¹ and has been used by several investigators in the treatment of a variety of clinical infections.² Since its therapeutic activity is apparently comparable to that of sulfadiazine, sulfathiazole and sulfapyridine, it is important to determine whether it possesses any advantage over those drugs with regard to toxic reactions. Evidence is conclusive³ that sulfadiazine is less toxic than sulfathiazole and sulfapyridine, and for this reason it is recommended more frequently for systemic use than any other sulfonamide at the present time. In order to evaluate the toxicity of the more recently introduced sulfamerazine, we have at this time reviewed the records on all the patients observed by us to whom sulfamerazine⁴ or sulfadiazine⁵ was administered. These patients were in the wards of the Gallinger Municipal Hospital⁶ or in the private practice of one of us.

Altogether there have been 900 patients treated with sulfadiazine and 428 with sulfamerazine (table 1). Seventy-three patients showed a toxic reaction following the use of sulfadiazine, an incidence of 8.1 per cent, while 41, or 10.0 per cent of the patients receiving sulfamerazine, experienced toxic effects. There was no appreciable difference in the incidence of vomiting, mental confusion or leukopenia following the use of the two compounds. No patients developed acute hemolytic anemia or leukocytosis after the use of sulfamerazine, whereas each of these complications appeared twice in the group of patients who were given sulfadiazine. Fever, dermatitis or conjunctivitis resulting from sulfonamide administration, or any combination of them, was present in 2.9 per cent of the patients receiving sulfadiazine and in 3.7 per cent of those receiving sulfamerazine. This difference is not statistically significant.

The greatest difference between the two drugs occurred in the incidence of renal calculi. This pathologic condition was considered to be present if there

was pain in the region of the kidneys, gross hematuria, definite anuria or oliguria or any combination of these. Defined in this way, renal calculi resulting from sulfamerazine administration occurred in 3.5 per cent of the patients receiving that drug as compared with an incidence of 1.3 per cent in the patients receiving sulfadiazine, representing a difference which is statistically significant.

Since there is evidence that the administration of alkalis along with sulfadiazine and sulfamerazine⁶ will diminish the incidence of renal calculi, sodium bicarbonate was given to a few of the patients receiving each of these drugs. Most of these patients were in the sulfamerazine group, however, so that the lesser incidence of renal calculi observed in the patients receiving sulfadiazine cannot be explained on the basis of alkali therapy.

Both sulfadiazine and sulfamerazine were given according to several dosage regimens in different groups of patients. In some instances there were irregularities in dosage due to increases or decreases during the course of therapy or to intravenous or subcutaneous administration of the sodium salts of these

TABLE 1.—Toxic Reactions Following Administration of Sulfadiazine and Sulfamerazine

	Sulfadiazine		Sulfamerazine	
	No. of Patients	Per Cent	No. of Patients	Per Cent
Vomiting.....	11	1.2	5	1.2
Renal calculus.....	12	1.3	15	3.5
Drug fever, dermatitis and/or conjunctivitis.....	26	2.9	16	3.7
Mental confusion.....	13	1.4	3	0.7
Leukopenia (with or without granulopenia).....	7	0.8	4	0.9
Acute hemolytic anemia.....	2	0.2	0	0
Leukocytosis.....	2	0.2	0	0
Total patients with toxic reactions.....	73	8.1	41	10.0
Patients with no toxic reactions.....	827	91.9	387	90.0
Total patients treated.....	900	100	428	100

drugs. All the remaining patients, who received sulfadiazine or sulfamerazine orally according to certain established regimens without any variation during the course of therapy, have been compared with respect to the toxic reactions observed in each dosage group of each drug. These data are presented in table 2.

Sulfadiazine has been given at two dosage levels. The high dosage consisted of 6 Gm. immediately and 1 Gm. every four hours; the low dosage consisted of 2 Gm. statim and 0.5 Gm. every four hours. Sulfamerazine was given at three dosage levels: The high dose was identical with the high dose of sulfadiazine (6 Gm. followed by 1 Gm. every four hours). The intermediate dose was the same as the low dose of sulfadiazine (2 Gm. initially and 0.5 Gm. every four hours). The low dosage was 1 Gm. immediately and 0.5 Gm. every eight hours.

The levels of free sulfadiazine or sulfamerazine in the blood of a number of patients in each of the groups were studied. These determinations were usually made every day or every other day during the time the drug was being administered. The average free blood sulfonamide level has been determined for each of these patients, and the highest, lowest and median average blood levels for each dosage group are listed in table 2. The median of these averages was 11.0 mg. per hundred

From the George Washington Medical Division and the Infectious Disease Service, Gallinger Municipal Hospital, and the George Washington University School of Medicine.

1. Roblin, R. O., Jr.; Williams, J. H.; Winck, P. S., and English, J. P.: Chemotherapy: 1. Substituted Sulfanilamidopyridines, *J. Am. Chem. Soc.* **62**: 2002, 1940.

2. Gelfer, W. I.; Rose, S. B.; Domm, H. A., and Flippin, H. E.: Studies on 2-Sulfanilamido-4-Methyl-Pyrimidine (Sulfamerazine, Sulfamethyldiazine) in Man: III. The Treatment of Meningococcal Meningitis, *Am. J. M. Sc.* **206**: 211-216 (Aug.) 1943. Flippin, H. F.; Gelfer, W. I.; Domm, A. H., and Clark, J. H.: Studies on 2-Sulfanilamido-4-Methyl-Pyrimidine (Sulfamerazine, Sulfamethyldiazine) in Man: IV. The Treatment of Pneumococcal Pneumonia, *ibid.* **206**: 216-221 (Aug.) 1943. Flippin, H. F.; Reinhold, J. G., and Gelfer, W. I.: Sulfamerazine: Clinical Evaluation in 400 Cases, *M. Clin. North America* **27**: 1447-1462 (Nov.) 1943. Hageman, P. O.; Harford, C. G.; Sobin, S. S., and Ahrens, R. E.: Sulfamerazine: A Clinical Study of Its Pharmacodynamics, Therapeutic Value and Toxicity, *J. A. M. A.* **123**: 325-330 (Oct. 9) 1943. Hall, W. H., and Spink, W. W.: Sulfamerazine: Clinical Evaluation in 116 Cases, *ibid.* **123**: 125-131 (Sept. 18) 1943. Lepper, M. H.; Sweet, L. K., and Dowling, H. F.: The Treatment of Meningococcal Infections with Sulfadiazine and Sulfamerazine (Sulfamethyldiazine, Monomethylsulfadiazine), *ibid.* **123**: 134-138 (Sept. 18) 1943.

3. Dowling, H. F., and Lepper, M. H.: Toxic Reactions Following Therapy with Sulfapyridine, Sulfathiazole and Sulfadiazine, *J. A. M. A.* **121**: 1190-1194 (April 10) 1943. Plummer, N., and Wheeler, C.: The Toxicity of Sulfadiazine: Observations on 1,357 Cases, *Am. J. M. Sc.* **207**: 175-184 (Feb.) 1944.

4. Sulfamerazine and sulfadiazine were supplied by the Lederle Laboratories, Incorporated.

5. The members of the visiting and resident staffs of the Georgetown and George Washington Medical Division cooperated.

6. Fox, C. L.; Jensen, O. J., and Mudge, G. H.: The Prevention of Renal Obstruction During Sulfadiazine Therapy, *J. A. M. A.* **121**: 1147-1150 (April 3) 1943. Gilligan, D. R.; Garb, S.; Wheeler, C., and Plummer, N.: Adjuvant Alkali Therapy in the Prevention of Renal Complications from Sulfadiazine, *ibid.* **122**: 1160-1165 (Aug. 21) 1943.

cubic centimeters for patients receiving the high dose of sulfamerazine, which was considerably higher than the median of 7.55 mg. per hundred cubic centimeters found in patients who were given the same dose of sulfadiazine. Likewise the median of the average blood levels for patients receiving the intermediate dose of sulfamerazine was higher (6.4 mg. per hundred cubic centimeters) than that achieved by the same dose of sulfadiazine (5.25 mg. per hundred cubic centimeters) but lower than the median observed in those patients receiving high doses of sulfadiazine. The median of the average blood levels of 30 patients receiving the low dose of sulfamerazine was 3.95 mg. per hundred cubic centimeters.

On the basis of these values, the incidence of toxic reactions observed in each dosage group can be examined. Renal calculi were present in only 3 (1.5 per cent) of 195 patients who received the large dose of sulfadiazine, while none of the 140 patients who received the small dose of this drug developed a renal complication. On the other hand, a higher incidence (8.6 per cent) of renal calculi was observed in the patients who received the high dose of sulfamerazine. It will be recalled that these patients had the highest levels

to higher doses of sulfadiazine, but this is less apparent with respect to sulfamerazine.

Lyons and Balberor⁷ have found that the incidence of drug fever, dermatitis and conjunctivitis is more frequent in patients receiving a second course of sulfonamides than in patients receiving only one course. Two of us⁸ have shown that the incidence of fever following second courses of sulfapyridine, sulfathiazole or sulfadiazine, while greater than that found during the first course of each of these drugs, is nevertheless proportional to the frequency of fever during the first course. The incidence of these complications following a second course of a drug is therefore a good index of the tendency of a sulfonamide to produce this kind of sensitivity. Utilizing this method to compare the two sulfonamides under consideration, we found (table 3) that, among 60 patients who experienced no toxic reaction to the first course of sulfadiazine and who received after varying intervals a second course of the same sulfonamide, 3, or 5 per cent, developed fever, dermatitis, conjunctivitis or a combination of these. Among 93 patients given a second course of sulfamerazine 7 (7.5 per cent) developed one of these toxic reactions. This difference, while not statistically significant, is

TABLE 2.—Toxic Reactions to Oral Administration of Sulfamerazine and Sulfadiazine Encountered in Adult Patients, Classified According to Dosage

Drug	Dose, Gm.		Average Free Drug Level on Patients Frequently Tested				Important Toxic Reactions Encountered						
	Initial	Every 4 Hrs. There- after	Number of Patients	Lowest, Mg. per 100 Cc.	Median, Mg. per 100 Cc.	Highest, Mg. per 100 Cc.	Total Patients Treated	Renal Calculus		Fever, Rash, Conjunctivitis		Leukopenia	
								No.	%	No.	%	No.	%
Sulfadiazine.....	6	1	34	4.5	7.55	13.0	195	3	1.5	3	1.5	4	2.1
	2	0.5	42	2.4	5.25	11.8	140	0	0	2	1.0	0	...
Sulfamerazine.....	6	1	23	4.6	11.0	19.8	35	4	8.6	2	5.9	0	...
	2	0.5	51	3.1	6.4	12.4	87	3	3.4	3	3.4	2	2.3
	1	0.5	30	f.t.*	3.95	8.6	58	1	1.7	1	1.7	0	...
		every 8 hrs.											

* Only a faint trace of drug was present, which was too low to calculate numerically.

of all the groups studied. Among the patients who were given the intermediate dose of sulfamerazine, 3.4 per cent developed renal calculi as compared with 1.5 per cent of those who received the high dose of sulfadiazine, although the average free blood sulfamerazine levels for this group were lower than those observed in the patients who received the high dose of sulfadiazine. Furthermore, among 58 patients who received the lowest dose of sulfamerazine (1 Gm. statim and 0.5 Gm. every eight hours) one calculus developed, an incidence of 1.7 per cent, whereas no calculi occurred in 140 patients who received the low dose of sulfadiazine. In the latter groups the patients receiving sulfadiazine had higher free blood sulfonamide levels than did those receiving sulfamerazine.

When the incidence of renal calculi occurring in patients receiving sulfamerazine in certain doses is compared to those observed in patients receiving identical doses of sulfadiazine, the differences are statistically significant. On the other hand, when the comparison is made according to the level of free sulfonamide in the blood the differences, although consistently showing that more calculi developed following sulfamerazine than after sulfadiazine administration when the blood levels were approximately the same, were not statistically significant.

Drug fever, dermatitis and conjunctivitis likewise were more frequent in the patients receiving sulfamerazine, even in the smallest doses, than they were among the patients receiving sulfadiazine. There was a suggestive relationship of the incidence of leukopenia

suggestive, since it is in conformity with the more frequent occurrence of febrile reactions following initial courses of sulfamerazine than following sulfadiazine.

COMMENT

In the search for the ideal sulfonamide, therapeutic efficiency comes first. There is no apparent difference in the ability of sulfapyridine, sulfathiazole, sulfadiazine and the newly introduced sulfamerazine to combat human infections. Accordingly, in order to decide

TABLE 3.—Fever, Dermatitis and/or Conjunctivitis Following a Second Course of Sulfadiazine or Sulfamerazine

	Total Patients Receiving Second Course	Patients with Fever, Dermatitis and/or Conjunctivitis During Second Course	
		Number	Per Cent
Sulfadiazine.....	60	3	5.0
Sulfamerazine.....	93	7	7.5

whether sulfamerazine will (1) displace the other sulfonamides, (2) take its place alongside them as being of equal value or (3) be discarded altogether, we must next examine the factor of relative toxicity. Since sulfadiazine is considered by the majority of observers to be the least toxic of the sulfonamides in use before

7. Lyons, R. H., and Balberor, H.: Febrile Reactions Accompanying the Readministration of Sulfathiazole, J. A. M. A. 118: 955-958 (March 21) 1942.
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the advent of sulfamerazine, we have compared the toxic reactions resulting from the use of sulfamerazine and sulfadiazine. Very little difference was observed between the two drugs except in the number of instances of renal calculi and drug fever (with or without dermatitis and conjunctivitis). These reactions were more frequent in the patients receiving sulfamerazine.

Certain investigators have suggested that lower doses of sulfamerazine can be used than of sulfadiazine, because the levels obtained with the former drug are greater. We have confirmed the fact that these higher levels develop.

On the other hand, Gilligan⁹ has recently shown that approximately twice as much sulfamerazine as sulfadiazine is bound to the serum proteins. If the portion bound to proteins is therapeutically inactive, and there is laboratory evidence to this effect,¹⁰ then much higher levels of sulfamerazine must be maintained to provide therapeutic efficiency equal to that of sulfadiazine.

In order to obtain these, it may prove necessary to administer similar doses of the two drugs. This we have done and have found that there was a statistically significant increase in the number of renal calculi resulting from sulfamerazine therapy over those observed during the administration of the same dose of sulfadiazine.

Even if it should subsequently be proved that the same blood levels of sulfamerazine and sulfadiazine are equally effective, and consequently that lower doses of sulfamerazine than of sulfadiazine may be given with the same therapeutic results, we have found a suggestively higher incidence of toxic reactions resulting from sulfamerazine than from sulfadiazine when cases were compared according to the levels obtained in the blood. If continued investigation confirms these results, it would seem reasonable to conclude that sulfadiazine is still the drug of choice among the sulfonamides for systemic use but that sulfamerazine can be used with equal effectiveness in certain cases in which sulfadiazine is not suitable.

SUMMARY AND CONCLUSIONS

1. Toxic reactions occurred in 10.0 per cent of 428 patients to whom sulfamerazine was administered, compared with 8.1 per cent of 900 patients receiving sulfadiazine.

2. There was no significant difference between the incidence of any individual toxic reactions in the two groups, with the exception that renal calculi were more frequent following the administration of sulfamerazine. Drug fever (with or without dermatitis and conjunctivitis) was also more frequent following sulfamerazine, although the difference was not statistically significant. When the patients were compared according to dosage or according to the average free sulfonamide levels reached in the blood, the aforementioned toxic reactions more frequently followed the administration of sulfamerazine than the administration of sulfadiazine.

3. Drug fever occurred more often during a second course of sulfamerazine than during a second course of sulfadiazine.

4. Sulfadiazine is the drug of choice for systemic sulfonamide therapy at the present time.

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THE EFFECT OF SULFADIAZINE ON THE COORDINATION AND REACTION TIME OF YOUNG MEN

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It is generally recommended that persons who receive sulfonamide therapy should not undertake work involving balance, perception or the operation of intricate machinery,¹ because of the hazard of the mental confusion,² interference with memory and judgment,³ dizziness⁴ and lassitude,⁵ which are said to be common accompaniments of therapy.⁶ There are indeed but few diseases besides gonorrhea and chancroid which justify sulfonamide therapy of ambulatory patients. However, recent studies⁷ indicate that sulfonamide chemoprophylaxis may eventually be widely used for healthy persons to prevent threatened epidemics of meningococcal meningitis and perhaps for other contagious infections. Therefore, because of the frequency of the diseases mentioned, which occur largely in the age group most likely to be engaged in such types of work especially in driving land, water or air vehicles, it is of importance to learn what proportion of patients receiving sulfonamide compounds are so affected and to what extent.

There are few reports of controlled studies with human subjects. Roughton and his co-workers⁸ reported studies of 6 subjects; of these only 3 were able to complete all the tests while taking sulfanilamide; the others developed nausea and vomiting and one a head cold. The subjects were given 2 to 3 Gm. of sulfanilamide daily and reacted in such a manner in the opinion of the authors that the use of sulfanilamide was unsuitable in those expected to continue exacting

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Cooperation was extended by Major E. J. Henry of the Pennsylvania State Police and by the Pennsylvania Chapter of the Red Cross Motor Corps.

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or strenuous work. In contrast they⁹ found that sulfadiazine or sulfathiazole up to 4 Gm. in twenty-four hours given to 6 healthy young men resulted in no limitation in the normal activity or the ability to perform both moderate and exhausting work.

Reynolds and Shaffer,¹⁰ who gave 4 to 5 Gm. of sulfathiazole or 4 Gm. of sulfadiazine over a twenty-four hour period, believed that a comparison of the controls and those receiving the drugs showed no differences in mental efficiency or hand-eye coordination by the test which they used. A few subjects receiving sulfathiazole had poorer averages, but this was interpreted as idiosyncrasy to the sulfathiazole. However, Reynolds and his co-workers¹¹ showed that small doses of sulfathiazole and sulfadiazine affected depth perception and muscle balance of the eyes and suggested the drugs be not used indiscriminately among those requiring maximum visual efficiency.

Because of the availability of special apparatus which closely resembled actual working conditions, the following studies were made:

METHODS

The two types of tests used were (1) steering and (2) vigilance. The steering test measures eye-hand coordination, while the vigilance test measures reaction time, alertness, coordination or the ability to perform several acts at one time.

Both tests were made by means of an apparatus of the type developed for determining the fitness of automobile drivers by Dr. H. R. DeSilva, formerly of the Harvard Bureau for Traffic Research and used by the Pennsylvania State Motor Bureau. The apparatus is constructed so that it resembles the driving compartment of an automobile with a driver's seat, a steering wheel, clutch and brake pedals, an accelerator and gear shifting lever. In its operation it simulates actual driving conditions under laboratory control.

STEERING (EYE-HAND COORDINATION)

First, the subject was obliged to "steer the car" and keep it alined with a small dot located in the center of a movable road scene realistically portrayed directly in front of the subject. The road scene moves from side to side in a slow, smooth but unpredictable motion. A pilot light is located on each side of the road scene in order to warn the subject when his car is off alinement. If, for example, the car is too far to the left, the left pilot light flashes on. The pilot lights are off when the car is properly alined. The margin of error is very slight, about $\frac{1}{8}$ inch, thus making it possible to test a high degree of eye-hand coordination. Once started, the duration of the test is eighty seconds; the first twenty seconds is a practice period during which time the test score in seconds or percentage of one minute is automatically recorded on the dial of an electric clock. The actual test is recorded during the next sixty seconds. The clock records only the duration of time in which the automobile is "alined," and if "off the course" it does not register until proper alinement is resumed. At the end of eighty seconds the road scene automatically stops moving.

A score of 65 per cent is considered as normal or average. This means that a driver with a score of 65 per cent was able to keep his car properly alined for thirty-nine seconds, or 65 per cent of the one minute test. The higher the score the better the degree of coordination.

VIGILANCE (REACTION TIME AND COORDINATION)

This test measures alertness and ability to perform several acts at one time. The subject must shift gears and apply the brake as in actual driving in addition to steering, as described.

When the car has been "started in motion" by engaging the gears, the road scene begins to move from side to side as described. The operator must keep the car in proper alinement and watch a traffic light at the side of the road. The traffic light flashes green when pressure is applied to the accelerator. At an unpredictable moment the light suddenly turns red. At this signal the subject must instantly apply the brake and clutch pedals. On application of the brake, the road scene stops moving. The subject must then go through the procedure of shifting gears in order to make the road scene move again. This procedure is continued until the test is completed. The entire test again consists of a twenty second practice period and an actual test period of sixty seconds. The practice period includes one emergency stop, while the actual test contains four emergency stops.

An electric recording clock measures the reaction time in hundredths of a second. The reaction time is the period between the flash of the red light and pressure on the brake pedal. The steering score in this test is recorded by another electric clock as described for the steering test. Average scores for this test are as follows:

Brake reaction time, $\frac{75}{100}$ second. The shorter the time the quicker or better the reaction. For steering, 45 per cent is considered as normal or average score. The higher the score the better the coordination.

Tests were made on 134 medical students ranging in age from 22 to 34 years (average 24.5) and weighing from 125 to 210 pounds (57 to 94 Kg.), with an average weight of 162 pounds (73.5 Kg.). Ninety were given sulfadiazine, and 44 served as controls.

The steering and vigilance tests were made first on the group of 90 students before treatment. Sulfadiazine was then given by mouth in an initial dose of 2 Gm. and then 1 Gm. every four hours for eighteen doses: a total of 19 Gm. administered over seventy hours. At the end of this time the steering and vigilance tests were repeated on the same group. The amount of sulfadiazine in the blood was measured immediately after the test by the method of Bratton and Marshall¹² by means of a photoelectric colorimeter. One week later the tests of coordination and reaction time were repeated and the amount of sulfadiazine in the blood again measured.

Forty-four students who did not receive any sulfadiazine served as controls and took the same series of tests. Controls seemed necessary for the tests, since men in the treated group, once having passed through the preliminary test, became acquainted with the apparatus and showed a small degree of improvement when tested a second time.

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RESULTS

The amount of sulfadiazine in the blood at the time of the test ranged from 5.4 to 16.6 mg. per hundred cubic centimeters of blood (average 9.5 mg.). This variation in absorption by the oral route is similar to that found by others. In no case was any sulfadiazine found in the blood specimen taken one week later.

The accompanying table shows the prevalence of symptoms and signs of toxicity. These were determined by questioning the subjects when they returned for their second series of tests, after having taken sulfadiazine for a period of seventy hours.

Statistically there were no significant differences between the reaction times or the hand-eye coordination tests of the 90 subjects receiving the sulfadiazine and the 44 controls. In no instance were the variations in any 1 individual's test of enough moment to be of significance. The results obtained by using a large number of subjects and a machine which more nearly approximates actual working conditions is in harmony with the findings of Roughton and his co-workers⁹ and of Reynolds and Shaffer.¹⁰ Any impairment of visual efficiency, as might be expected from the findings of Reynolds and his co-workers,¹¹ was not reflected in change great enough to affect the hand-eye coordination or the reaction time as determined by our tests.

Symptoms and Signs of Toxicity

Sense of fullness in head.....	30
Insomnia.....	15
Burnlag.....	11
Frequency.....	7
Rash.....	1
Drowsiness.....	3
Symptom free.....	38

It must be pointed out, however, that healthy students were used in the tests, and no information is at hand of the possible effects of a combination of some infectious disease and sulfonamide therapy, nor did any of the subjects used have an idiosyncrasy for the drug. It is also possible that readministration of sulfonamides in persons sensitized by previous medication may cause results different from those obtained. The results in the main show that in young men in good health the amount of sulfadiazine usually considered adequate for the treatment or prevention of certain infections caused no significant disturbance of reaction time or impairment of coordination and no evidence of any residual effects on coordination or reaction time when the tests were repeated seven days after the drug had been discontinued.

SUMMARY

Ninety healthy young men were given sulfadiazine by mouth. Two Gm. was the initial dose, and 1 Gm. was given every four hours for a total of 19 Gm. A special apparatus which simulated actual working conditions was used to measure the coordination and reaction time in persons who were given sulfadiazine and in those used as controls. Eye-hand coordination and reaction times were automatically recorded by an electric clock. Tests were made before the administration, during and seven days after the drug was discontinued. There was no significant difference between the controls and those subjects given sulfadiazine.

BROMIDE INTOXICATION FROM PROLONGED SELF MEDICATION WITH
B. C. HEADACHE POWDER

REPORT OF TWO CASES

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For many years medical literature has included specific case reports of innocent and unintentional intoxication from drugs. Among the drugs most often incriminated in this respect are aminopyrine and its many compounds, producing agranulocytosis, the barbiturates, producing various toxic effects, particularly from overdosage, and the bromides, either alone or mixed with acetanilid.

There seems to be an increase in this type of intoxication caused, according to the Federal Trade Commission, by increased consumption of various agents designed to soothe the nerves of a population at war living in a scarcity of doctors.

It is only within recent years that certain proprietary medicines have been specifically incriminated in the production of hematologic, neurologic, psychiatric, dermatologic and other pathologic manifestations in the habitual user. Such agents have included Bromo-Seltzer,¹ Neurosine,² Pyramidon³ and Sedormid.⁴ This paper adds another popular self-medication agent, B. C. headache powder, to the list. Of especial interest in these 2 case reports are the neurologic, psychiatric and dermatologic findings presumably following chronic prolonged bromide intoxication, bromide being one of the effective agents in B. C. headache powder.

REPORT OF CASES

CASE 1.—*History*.—F. G., a white man aged 35, a carpenter, who was admitted to the Emory University Hospital on March 8 and discharged on March 27, 1943, and whose memory was fairly accurate up until March 8, was seen on that day to be stumbling aimlessly around the streets of his home town and was thought to be drunk. It was later established that he was not drunk and, as a matter of fact, did not use alcoholic beverages of any kind. After he was seen in this condition he was carried to a physician's office, where a presumptive diagnosis of drug intoxication was made, and he was admitted to the Emory University Hospital about thirty minutes later.

After hospitalization further history was obtained from his sister and his wife, as the patient responded only sluggishly and incoherently to interrogation. According to them the patient had been taking B. C. headache powders for the last fifteen years, taking from six to ten powders daily because of persistent "migraine" headaches. They further stated that he took no other drugs. During the last three years he had been having intermittent, prolonged, lethargic, somnolent episodes and had been unable to perform his carpentry activities with his usual steadfastness and skill. About two weeks before he had consulted his family physician, who by urinalysis alone made a diagnosis of diabetes mellitus and placed him on a diet with 18 units of protamine zinc insulin every morning,

Read before the staff of the Emory University Hospital in June 1943.

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which regimen he had followed faithfully. (After several days' hospitalization associated with clearing of the mental sensorium, the patient confirmed this history.)

Physical Examination.—At the time of admission the patient, who was fairly well nourished, appeared lethargic and semistuporous. There was a moderate cyanosis of the peripheral skin and mucous membranes, especially the lips. The pupils were widely dilated and did not react to light or in accommodation. There was a slight ptosis of both upper eyelids. There were dental caries and pyorrhea associated with foul breath. Examination of the skin revealed considerable moisture, which was characterized by a foul, distinctive odor. In addition, there were many maculopapular copper colored eruptions over the neck, back and calf muscles. Some of these were ulcerated (fig. 1). The heart and lungs were normal. The temperature was 99.6 F., pulse rate 96 and blood pressure 138/38. Examination of the abdomen and external genitalia was negative.

Neurologic examination revealed that the patient did not know where he was or the day of the week. He could not add, subtract or divide simple figures but did know his name, though only after persistent questioning. The equilibratory senses were normal, although he did possess a slight staggering gait on walking across the room. Succession, rebound, skilled acts and movements were all sluggish and slightly confused. No definite aphasia or dysarthria was noted. However, a



Fig. 1.—Multiple maculopapular and pustular coppery colored bromide eruptions over right calf skin surface.

slight tremor of the lips and hands was perceptible. The muscle tone was good, with absence of any atrophy. There was also slight tenderness over the lesion around the right calf muscle area. Tactile, pain, temperature and position senses were normal. The deep pectoral, biceps, triceps and radial reflexes were very sluggish. The cranial nerves were normal. There was no evidence of any meningeal irritation.

Laboratory Examination.—The blood sugar was 125 mg. per hundred cubic centimeters and on the following day 87 mg. per hundred cubic centimeters. The blood bromide (Wuth method) was 300 mg. per hundred cubic centimeters and the same on the following day. Spectroscopy of the blood for sulfhemoglobin and methemoglobin was negative. Red blood cells were 3,800,000 per cubic millimeter, hemoglobin 10.5 Gm. (68.2 per cent), white blood cells 14,500 per cubic millimeter, differential count: segmented neutrophils 88 per cent, lymphocytes 10 per cent, eosinophils 2 per cent. The platelet count was 310,000 per cubic millimeter. Urine examination was negative. On March 11 the reticulocyte count was 4.4 per cent, the blood bromide 200 mg. per hundred cubic centimeters and the blood chloride 82.5 mg. per hundred cubic centimeters of sodium chloride. The Kahn reaction was negative. On March 18 the blood bromide was 100 mg. per hundred cubic centimeters and chloride 338 mg. per hundred cubic centimeters of sodium chloride. The red blood cell count was 4,340,000 per cubic millimeter and hemoglobin 14 Gm. (91 per cent) (photometer); the white blood cell count was 13,350 per cubic millimeter, segmenters 85 per cent, lymphocytes 14 per cent and monocytes 1 per cent. The reticulocyte count

was 1.2 per cent and the sedimentation rate was 45 mm. in one hour by the Wintrobe tube method. X-ray examination of the chest showed a chronic bronchial reaction of both lower lobes with no evidence of tuberculosis. On March 22 the sputum was negative for acid fast bacilli and a qualitative bromide test on a twenty-four hour urine specimen was negative. On March 23 the blood bromide was 75 mg. per hundred cubic centimeters, the chloride 396 mg. per hundred cubic centimeters, the red blood cell count was 5,100,000 per cubic millimeter and the hemoglobin 14.4 Gm. (93.6 per cent). On April 1 the blood bromide was negative and blood chloride 511 mg. per hundred cubic centimeters.

Course and Treatment.—The patient remained in the hospital for nineteen days. During the first two days he showed evidence of disorientation with tardy response to questioning and tended to lapse into a somnolent state during interrogation. Treatment consisted of intravenous saline solution, large amounts of fluids by mouth and a 5 grain (0.32 Gm.) salt tablet by mouth every three hours for five days, and then 10 grains (0.65 Gm.) every two hours for the remainder of his hospital stay. The patient's mental and physical status gradually returned to normal. During this time he experienced no attacks of migraine. The blood bromide fell from 300 mg. to 75 mg. per hundred cubic centimeters and the blood chloride rose to 396 mg. per hundred cubic centimeters.

A punch biopsy of one of the pustular right calf lesions was done and revealed a moderate hyperkeratosis of the epidermis with prolongation of some of the rete pegs into the underlying corium. The latter shows a pronounced inflammatory granulomatous-like change in its upper part. This reaction was rather sharply limited and consisted chiefly of lymphocytic cell infiltrations with large numbers of eosinophils, plasma cells and lymphocytes. In addition there was a definite dilatation of the blood vessels in the corium, the lumens being engorged with leukocytes and the vessels showing proliferation of the endothelium and surrounding perivascularitis. The microscopic changes appeared consistent with those previously described as characteristic of bromoderma (fig. 2).

Six weeks after discharge from the hospital there was a negative blood bromide and blood chloride of 511 mg. per hundred cubic centimeters. The cyanosis of the skin and mucous membranes gradually disappeared. In the absence of methemoglobin the cause of this gross discoloration was never determined.

CASE 2.—History.—M. F. T., a white man aged 43, a fireman, admitted in a semistuporous condition to Grady Hospital on Nov. 9, 1942 and discharged on November 21, for the past two months had been acting strangely. He had often been drowsy and difficult to awaken, often wandered about aimlessly, lost considerable weight and tended to prevaricate. Recently he had become even more lethargic, and his gait and movements had become ataxic. Several days before admission he was picked up by the police, who suspected drunkenness. At the time of entry it was difficult to arouse the patient. His replies to questions were erratic. According to his wife and relatives, he had been accustomed to take an occasional B. C. headache powder for relief of headache. About two months before the present episode he had a painful abscessed tooth but said he could not stop work to get treatment and therefore consumed as much as six packages of B. C. powder each day for one week. One day he was seen to have taken thirteen packages of B. C. headache powders and is known to have taken a great many since then for these recurrent "headache" troubles. No other history of drug consumption could be elicited.

Physical Examination.—The temperature was 98.6 F., the pulse rate 70, respiratory rate 18 and blood pressure 120/70. The patient was very somnolent, gave irrational answers, had definite muscular incoordination and was unable to give a satisfactory history. No skin eruptions were present. The ears, lips and mucous membranes showed a moderate degree of cyanosis. The neck was not rigid, and the pupils reacted to light and in accommodation. The conjunctivas were moderately injected. There was a purulent exudate at the inner canthus

of both eyes. Fundoscopy was also negative. The patient was edentulous, the tongue beefy red and the pharynx slightly reddened. Examination of the heart and lungs was essentially negative except for presence of an emphysematous chest associated with distant breath sounds, and occasional small bronchial rales. The heart sounds were distant, and there was a slight apical systolic murmur. The abdomen was obese, with no organs palpable. The extremities showed slight cyanosis of the nail beds with considerable ataxia and a coarse tremor. The reflexes were physiologic throughout but slightly hypoactive. The gag reflex was present but slightly diminished.

Laboratory Examination.—There was a cell count of 3,400,000 per cubic millimeter, hemoglobin 10 Gm. (Sahli), white blood cell count 6,600 per cubic millimeter, with segmented neutrophils 62 per cent, lymphocytes 36 per cent and monocytes 2 per

sible for his actions. During the latter days of his hospital stay he became alternately euphoric and rowdy and up to the sixth hospital day he could not solve simple addition or subtraction. On the seventh hospital day he stated that he felt better than he had felt in the last two years. The blood bromide level at this time was 150 mg. per hundred cubic centimeters by the Wuth method. His mental status was much improved. On the tenth hospital day he was practically well, i. e. had good muscular coordination, his mental state was back to normal and he appeared very much improved. The blood bromide level at this time was 100 mg. per hundred cubic centimeters and the blood chloride level was 551 mg. per hundred cubic centimeters as sodium chloride. He was discharged with advice to continue salt medication with fluids and rest.

COMMENT

Although bromide intoxication appears to be a fairly common condition, as may be surmised from reviewing the literature, many physicians still fail to recognize it. Bromidism may be seen in patients who either resort to self medication or who are given the drug by physicians. In either case there is a tendency to use the agent in increasing amounts over long periods of time, especially by the type of individual who exhibits what Alvarez has termed "constitutional inferiority" and who suffers from recurrences of either real or imaginary discomforts. During wartime we may expect an increase in the incidence of bromidism from both sources. The frequency of bromidism is a controversial question, but it ranks high among drug intoxications as observed in mental institutions.⁵

B. C. headache powder, the toxic agent in the 2 cases described here, contains the following ingredients in each powder: potassium bromide $7\frac{1}{2}$ grains, acetanilid $2\frac{1}{2}$ grains, and acetylsalicylic acid and caffeine citrate in proportionate amounts not stated on the label. In most cases of bromidism certain findings are evident, these usually including partial delirium, mental retardation, slowed speech, ataxia, tremors of the hands and disturbances of attention and memory. Hallucinations may occur, but outspoken hallucinosis is rare. Paranoid delusions are not infrequent. Wallace and Brodie⁶ have stated that, although bromides and chlorides are equally distributed in the extracellular spaces and soon reach a concentration in these areas corresponding to that in the blood stream, they are found in smaller amounts in the brain and cord tissue in relationship to chlorides. This may be one of the reasons, in addition to other factors, why it apparently requires varying quantities of bromides to produce central nervous system symptoms in different people. For example, Wagner and Bunbury⁷ found that, of 1,000 consecutive persons admitted to the Colorado Psychopathic Hospital from 1928 to 1930, 7.7 per cent had an average bromide level of 75 mg. per hundred cubic centimeters, but only 4.4 per cent had mental symptoms. On the other hand, Wuth,⁸ on examination of 238 admissions to Phipps Clinic, demonstrated 50 cases with varying levels of bromide concentration and of these 20 showed evidence

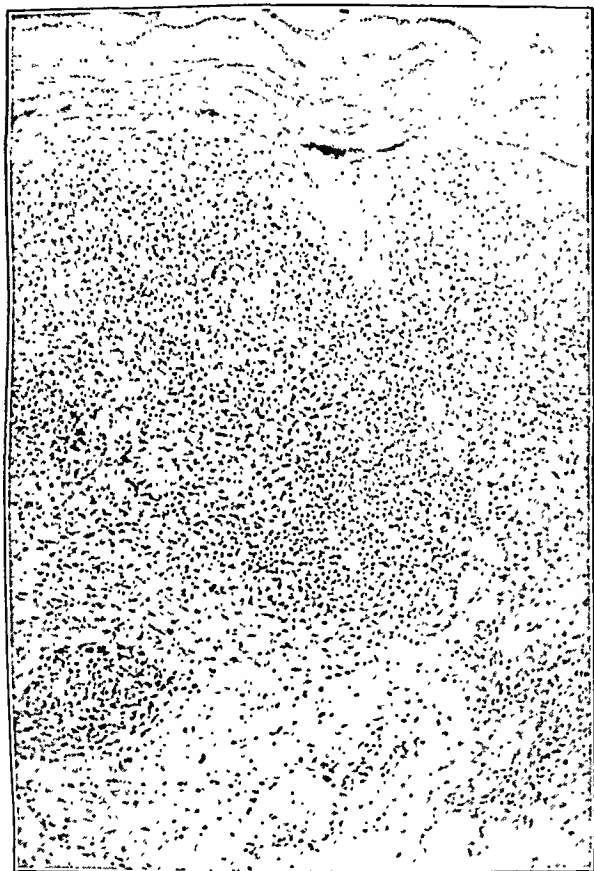


Fig. 2.—Bromoderma, characterized by pronounced acute and chronic leukocytic cell infiltration in the corium—granulomatous in appearance—and associated with moderate proliferation of the endothelium and surrounding perivascularitis.

cent. The urinalysis was negative. The sedimentation rate by the Wintrobe method was shown to be a 2 mm. fall in one hour. The blood sugar was 80 mg. per hundred cubic centimeters and the nonprotein nitrogen 30 mg. per hundred cubic centimeters. The blood bromide level was 500 Gm. per hundred cubic centimeters. Spectroscopy of the blood revealed no methemoglobin. Spinal fluid examination showed an initial pressure of 230 mm. of water but was associated with incomplete relaxation. The spinal fluid dynamics, cell count and protein were normal. Kahn tests on the spinal fluid and blood were negative.

During the first few days the patient was completely disoriented, alternating between somnolence and excitement, talking incoherently, exhibiting muscular incoordination and general depression of cerebral activity. The sensorium was deeply disturbed. He had many hallucinations, both auditory and visual. It was necessary to have an attendant constantly present to prevent damage by the patient, who was totally irrespon-

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6. Wallace, G. B., and Brodie, B. B.: On the Source of the Cerebrospinal Fluid: The Distribution of Bromide and Iodide Thruout the Central Nervous System, *J. Pharmacol. & Exper. Therap.* **70**: 418, 1940.

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hyperemia of the gastric mucosa, increased glandular secretion and motor activity. Fear produced pallor of the mucosa, decreased motility and glandular secretion characteristic of predominantly sympathetic activity. As has been implied, the battle reaction is the continuation of the fear response to the initial traumatic experience.

We will not review the literature on pathology and treatment of this condition in this preliminary report. To date two of the main attacks on the problem have been a combination of recall of the original episode with all its concomitant fear, through the use of a barbiturate or hypnosis, and sleep, usually prolonged by barbiturates. Pentothal and sodium amytal narcosis have been recommended and have been successfully employed. However, in a certain number of cases in spite of repeated reviewing of the traumatic experience and other phases of the Rest Center program there has been no diminution of symptoms.

In view of the fact that the symptoms were so clear-cut and so obviously due to sympathetic dysfunction, it was thought that a trial with drugs acting directly on the autonomic nervous system was indicated. Two possibilities were open:

1. To increase the action of the parasympathetic nervous system and therefore balance the overaction of the sympathetic by the use of doryl³ (carbaminoylecholine) and mecholyl⁴ (acetyl-beta-methylcholine bromide).
2. To neutralize the action of the sympathetic by the use of ergotamine tartrate⁵—an inhibitor to that system.

EXPERIMENTAL APPROACH

All these drugs were tried out separately on 7 normal persons to determine which best combated the symptoms produced by the injection of 1 cc. of epinephrine 1:1,000 solution. Epinephrine most closely resembles sympathin, which is the humoral transmitting agent liberated during sympathetic overactivity which occurs as a reaction to fear. It was not possible to make a direct experimental approach under our conditions. The action of epinephrine being rapid and transitory, it was necessary to give first the slower acting drugs ergotamine, doryl and mecholyl, and then at the height of the reaction to give the epinephrine and note whether the reaction to epinephrine was prevented or effected.

Two mg. of doryl was given by mouth, and at the height of the parasympathetic reaction the epinephrine was injected. (Subjective symptoms and pulse and blood pressure were noted throughout the experiment.) On the following day 250 mg. of mecholyl was given, followed by epinephrine, under as nearly constant conditions as possible. On the third day 4 mg. of ergotamine tartrate was given and also followed by epinephrine. The ergotamine tartrate proved most efficacious in reducing the reaction to epinephrine.

3. Starr, I., Jr.: Carbaminoylecholine: Its Action on Normal Persons, in *Peripheral Vascular Disease and in Certain Other Clinical Conditions*, Am. J. M. Sc. **193**: 393-405, 1937.

4. Comroe, J. H., Jr., and Starr, I., Jr.: Further Studies on Pharmacology of Acetyl-Beta-Methylcholine and Ethyl Ether or Beta-Methylcholine, *J. Pharmacol. & Exper. Therap.* **49**: 283-299, 1933. Acetyl-Beta-Methylcholine and Mecholyl (Mecholin)-Merck, report of the Council on Pharmacy and Chemistry, *J. A. M. A.* **105**: 281-283 (July 27) 1935.

5. Jang, C. S.: Potentiation and Paralysis of Adrenergic Effects of Ergotamine and Other Substances, *J. Pharmacol. & Exper. Therap.* **71**: 87-94, 1941. Lorda, C.: Effects of Cocaine, Ergotamine and Yohimbine on Activity of Phenol Sulfur Esterone (in Relation to Inactivation of Epinephrine), *ibid.* **77**: 123-126, 1943. Rubin, E.: Ergotamine Tartrate in Disturbed Psychotic Patients, *M. Bull. Vet. Admin.* **18**: 416-419, 1942. Dall, H. H.: On Some Physiological Actions of Ergot, *Am. J. Physiol.* **34**: 163-206, 1906; On the Action of Ergotamine, with Special Reference to the Existence of Sympathetic Vasodilators, *ibid.* **46**: 291-300, 1913.

TREATMENT OF PATIENTS

Three patients showing typical battle reactions were given 250 mg. of mecholyl three times a day for ten days with no results.

Five patients were given 2 mg. of doryl for ten days with slight improvement, which might have been due to other Rest Center factors.

Ergotamine tartrate was given to 20 patients classified as having battle reactions. Usually it was given orally, 3 mg. for the first dose, then 2 mg. every three hours for ten days. In 3 cases in which symptoms had subsided after two to three days the drug was stopped. Symptoms returned but again subsided with continuation of the drug. After continuing therapy seven days more, the gain was held.

A further control of the effect of suggestion was possible. Many patients before arrival had received $\frac{1}{2}$ grain (0.032 Gm.) of phenobarbital tablets. Because of the close resemblance between the ergotamine tablet and phenobarbital, they felt that the same medication was being continued. Before long they reported a difference, stating that they were calmer, stronger, more at ease and had improved appetites while taking ergotamine.

Ergotamine was administered to 20 psychoneurotic patients, many mildly colored by war experience, with negative results. This observation is in accord with the reports of others. It is important to note that the civilian neuroses do not manifest themselves with such clearcut sympathetic preponderance as do the true war cases.

Careful watch is constantly kept for early untoward reactions (tingling and numbness) that we felt might develop from the relatively large doses used. Thus far there have been none. Patients suspected of hepatic insufficiency are not treated with ergotamine because of recent experimental data suggesting that the drug is broken down by the liver.⁶ Other contraindications are advanced arteriosclerosis and certain peripheral vascular diseases.

As far as we were able to observe, the taking of ergotamine did not interfere with motor coordination or slow down mental processes. Its use, therefore, as a prophylactic to lessen excessive anxiety in combat might be considered.

REPORT OF CASES

The following typical cases indicate the procedures and results:

CASE 1.—A third mate aged 28 developed a severe battle reaction following a twenty-five minute running battle with two submarines. His ship was unarmed, and the Germans were raking the decks with antiaircraft fragmentation shells. A large part of the crew was killed, and he narrowly escaped with a few minor shrapnel wounds.

Each time he thought of this action, an uncomfortable feeling developed in the pit of his stomach, followed by an intense fear reaction and then varying degrees of amnesia. As he gave his history he went through this cycle. Relief followed the administration of 0.5 mg. of ergotamine hypodermically. After that he was able to discuss the event freely with only slight anxiety. He was continued on ergotamine by mouth for the usual period. Confidence returned rapidly as he found the incident could be discussed without anxiety and remained after the drug was discontinued. He was able to witness a movie of a torpedoing with little concern, whereas before

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treatment it produced panic. On discharge he confidently returned to sea duty.

CASE 2.—A patient developed battle reaction after many bombings sustained while shipping between Alexandria and Malta. He became "frozen" with fear and later developed a fullblown reaction with coarse tremors of his entire body. He was hospitalized in Africa and later in England before arriving in the United States. Despite the lapse of almost a year, he felt that he was almost as disturbed as at first. After two days on ergotamine, tension was considerably lessened and appetite improved. He stated that he felt better than at any time since the bombing. When medication was stopped after three days, the symptoms returned. It was then continued for five days more, again with improvement, which this time he maintained. He now is employed ashore and desires to return to sea. Though the symptoms are gone, it was not considered wise to send him back to sea because of the length of time he had the reaction before treatment and its severity.

CASE 3.—This offers an opportunity to compare two methods of treatment. A second cook aged 33 first entered the Rest Center in January 1943 suffering from intense anxiety with tremors, stammering speech, anorexia and insomnia resulting from a torpedoing and bombing attack. He was treated with sodium amytal (intravenously) and hypnosuggestion, as well as psychotherapy, and improved sufficiently to leave in six weeks. He returned to sea and carried on quite well until October 1943, when the convoy in which he was sailing underwent attack by a submarine wolf pack. The battle continued for five days. Many ships were sunk nearby before his was torpedoed. Just before his was hit the next in line was struck in the powder magazine, and all hands were lost. Throughout the battle the patient bore up well, but almost immediately on coming ashore all the symptoms shown on his first admission returned with increased severity. He was placed on ergotamine and in two days had quieted considerably. Speaking was much easier. On the third day the drug was stopped and symptoms returned. It was then resumed for five days, after which the patient managed to hold his gain. The convalescence period was two and a half weeks, in contrast to the six weeks of his previous admission, and he stated on discharge that he felt better than at any time since the first torpedoing. He is back at sea. Follow-up reports indicate that he remains well.

COMMENT

From the basis of this admittedly limited experience, it is felt that ergotamine tartrate is of some value in combating the sympathetic overactivity associated with fear in the reactions to battle. It serves as a valuable adjunct to psychotherapy because the patient in discussing his experience and future adjustments without the intense sympathetic reaction regains his self confidence, which in turn raises his threshold of resistance to fear, making him able to meet again the trials of life. With the patient fortified against the fear reaction, stronger and more direct methods can be used to desensitize him.

SUMMARY

The term battle reaction is suggested in place of traumatic war neurosis as being more accurate. In this category are grouped only cases in which the previous adjustment had been apparently normal. The reaction is regarded primarily as a physiologic disturbance, the result of inordinate fear causing pronounced sympathetic nervous system overactivity.

A cycle is established as a result of this autonomic imbalance. Physiologic changes primarily and, to a lesser degree, superficial psychologic mechanisms lower the patient's threshold to fear, causing the reaction to intensify and persist.

Autonomic drugs, it was felt, might more directly break up this cycle than sedatives. Ergotamine, a sym-

patholytic drug, together with the special environment of the Rest Center, seems superior to parasympathomimetic agents in the same environment. It has been given to 20 patients with "battle reaction" with what seemed to be convincing results. Many uncontrollable factors in the Rest Centers make rigid evaluation of any one phase of treatment difficult. It is more important to get the man well by all the means available than to set up a rigidly controlled experiment.

Ergotamine tartrate was ineffective in the treatment of ordinary psychoneurosis.

It is hoped that physicians working with similar types of patients will continue the experimentation.

MENTAL CHANGES IN PATIENTS WITH SUBDURAL HEMATOMA

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Mental changes in most patients with acute and with chronic subdural hematomas can be demonstrated by careful clinical and psychologic testing. Too often patients are discharged from hospitals as completely cured when they still have demonstrable mental disturbances which remain unrecognized because of inadequate neuropsychiatric examination. Goldstein,¹ Ruesch and Moore,² Schilder,³ Harrower-Erickson,⁴ Benton and Howell,⁵ Abbott, Due and Nosik⁶ and others⁷ studying head injuries found such impairment by different testing procedures. It has been shown that patients with cerebral lesions resulting from injury may have specific defects in their mental capacities which are not apparent from their general behavior and which can be elicited only by careful clinical and psychologic testing.

MATERIAL

With this in view we studied the last 50 cases of surgically proved subdural hematoma among persons admitted during the past year to the psychiatric division

Read before the Association of Research in Nervous and Mental Diseases, Dec. 17, 1943.

From the Psychiatric Division of Bellevue Hospital and the Departments of Psychiatry and Surgery of the New York University College of Medicine.

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2. Ruesch, J., and Moore, B. E.: Measurement of Intellectual Functions in the Acute Stage of Head Injury, *Arch. Neurol. & Psychiat.* 50:165 (Aug.) 1943.

3. Schilder, P.: Psychic Disturbances After Head Injuries, *Am. J. Psychiat.* 91:155 (July) 1934.

4. Harrower-Erickson, M. R.: Personality Changes from Cerebral Lesions: I. Rorschach Studies of Patients with Cerebral Tumors, *Arch. Neurol. & Psychiat.* 42:859 (May) 1940.

5. Benton, A. L., and Howell, I. L.: Use of Psychological Tests in Evaluation of Intellectual Function Following Head Injury: Report of a Case of Post-Traumatic Personality Disorder, *Psychosom. Med.* 3:138 (April) 1941.

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of Bellevue Hospital. During this period approximately 1,000 patients with severe head injury were admitted to the neurosurgical ward. Our patients were followed for at least three months. It is well known from other large statistical studies that contusion and laceration of the brain are commonly found together and may be associated with subdural hematoma. It is therefore difficult to evaluate the signs and symptoms of hematoma, isolated from the associated complications due to the related brain injury.

1. The patients ranged in age from 20 to 75. Most were in the fourth to the sixth decade. The group included 45 men and 5 women.

2. Alcoholism was a common complication, 19 being daily heavy drinkers, 19 periodic heavy drinkers, 4 daily moderate drinkers, 6 occasional drinkers and 2 nondrinkers.

3. Neurosurgically, all patients had bilateral trephine explorations.⁸ Fifty hematomas were found at operation, 46 acute and 4 chronic, varying in size from 10 to 350 cc. Thirty-two were unilateral and 18 bilateral. As to type, 43 were hematomas and 7 hygromas. Both subdural and epidural hematomas were present in 3 patients.

PREOPERATIVE FINDINGS

A. *Psychiatric Data.*—1. Changes in the state of consciousness included progressive loss of consciousness in 26 patients and loss of consciousness with one or more "lucid" intervals in 24. Convulsions occurred in 13.

2. As to the sensorium, continuous confusion in 33, confusion with interspaced clearing in 12 and continuous coma (not possible to test the sensorium) in 5.

3. The mood was (a) dull, apathetic and sluggish in 28, (b) irritable, antagonistic, uncooperative and assaultive in 11, (c) euphoric in 3, (d) a combination of a and b in 2, (e) depressed in 1 and (f) continuous coma (mood change therefore not elicited) in 5.

4. Thinking disorders (special preoccupations) were present as a reduction in mentation in 32, aphasia in 6, hallucinations (chiefly visual) in 5, delirium in 4 and delusions (due chiefly to sensory misinterpretations) in 4.

Much emphasis has been focused on the alterations of consciousness in subdural hematoma. We have been impressed with the need for a clearer terminology to be used to describe these alterations, so that different examiners and different clinics will talk the same language. With this purpose in mind, we devised a form on which was charted the state of awareness of the patient. This recorded the level of the patient's state of consciousness over each twenty-four hour period. We recorded three levels of deficit, namely drowsy, stuporous and comatose. This rough charting is helpful in evaluating the clinical course. More recently we have adopted the formulations suggested by Cobb,⁹ who described states of coma, semicoma, stupor and confusion dependent on the scoring of definitely measurable entities such as (1) elementary reflexes, (2) higher reflexes partly controlled by voluntary action, (3) verbal or written statements which indicate the degree of awareness and (4) examination of intellectual functions. Based on a series of eighteen tests covering these data,

one can more accurately delimit a clearer definition of states of loss of consciousness. We have found this formulation useful. Cobb summarized his findings, with which we agree, as follows:

Coma is a state of complete unresponsiveness to the environment. The patient's reactions are limited to elemental reflexes, and even some of these are impaired. Semicoma is a condition in which there is responsiveness to some of the elemental mental functions, such as calls by name, reaction to noise and reaction to a visual threat. There is no significant defect in the elemental reflexes. Stupor is a condition of greater awareness in which the patient has no defect in elemental reflexes, responds to elemental mental functions and, in addition, reacts to verbal commands, having an ability to execute simple orders, such as shutting the eyes and sticking out the tongue. Confusion is a state in which there is only a mild disturbance in the state of consciousness. The elemental reflexes, elemental mental functions and reactions to simple commands are usually intact. These patients present chiefly difficulties in orientation.

1. It appears from our data on the state of consciousness that progressively deepening coma occurred as frequently as did the so-called lucid interval. The history of a "lucid" interval is of much help in diagnosing subdural hematoma, but its absence does not rule out this condition.

2. Progressive confusion occurred in two thirds of our patients. One third had confusion with interspaced periods of clear sensorium. There were 24 patients who had interval periods of return of consciousness; only 12 of these had clear sensorium during this period. We want to stress the fact that the so-called lucid intervals were not always lucid. It commonly is an interval when the patient is alert and conscious but not clear in his sensorium. We therefore suggest that the term "interval of return of consciousness" describes more accurately such clinical findings. During this period of return of consciousness the patient may be clear or clouded in his sensorium.

3. The mood changes were striking. Emotional dullness, apathy or sluggishness was by far the commonest finding. This emotional state was closely related to alterations in consciousness and sensorium. The patient was inattentive to his environment and did not respond to stimuli which commonly evoke emotional responses, stimuli such as wife, children, a pretty nurse, demands of bowels or bladder and hunger. Likewise the spontaneous emotional activity was greatly reduced. Most patients would lie quietly in bed in a state of apathetic indifference. A clearcut depression or euphoria was exceptional.

One fourth of our patients reacted with irritability, antagonism, uncooperativeness and assaultiveness. These symptoms were found frequently associated with convulsive seizures or with mild confusion without deep clouding of consciousness or occasionally with delirium. We realize that most of our patients were alcoholic addicts, and this factor undoubtedly colors the individual's reactions. However, alcoholism is not an uncommon contributory factor in many patients with head injuries.

4. The thinking processes showed a manifestation that can best be described as a general reduction or constriction of the thought processes. Most patients were quiet; they rarely spoke spontaneously, and when questioned their responses were delayed, meager and

8. The operative work on these patients was done by Dr. Hippolyte Wertheim, attending surgeon, Third Surgical Division, Bellevue Hospital, New York.

9. Cobb, S.: State of Consciousness, read before the meeting of the American Neurological Society, 1942.

incomplete. Patients must be continually provoked to answer simple questions. Thinking was painfully slow and required great effort.

In 6 patients there was definite evidence of aphasia and they all had left-sided hematomas.

It is noteworthy that hallucinatory experiences and delusions were uncommon. When present, the hallucinations were chiefly visual and usually consisted of seeing people. The delusional ideas were mostly based on misinterpretations and confabulations. Delirium was present in only 4 patients. This is interesting in view of the large number of patients who were under the influence of alcohol.

B. Neurologic Data.—The color of the spinal fluid was bloody in 30, xanthochromic in 14, clear in 4, and tap was not done in 2. The spinal fluid pressure varied from 80 to 420 mm. of cerebrospinal fluid. We found no direct relationship between spinal fluid pressure and alterations of consciousness. Half our patients had cerebrospinal fluid pressure above 200 mm., and half were below 200 mm. of cerebrospinal fluid pressure.

With regard to neurologic signs, examination of the cranial nerves revealed the pupils dilated on the same side as the hematoma in 21, the pupils dilated on the side opposite to the hematoma in 17 and the pupils equal in 12. Mild papilledema was present in only 5 patients. As to motor power, 24 had hemiparesis, hemiplegia or monoplegia. The hematoma was on the same side in 7, the hematoma was on the opposite side in 14 and bilateral hematomas were found in 3. Two patients had quadriparesis; 1 of them had a bilateral hematoma and the other a unilateral hematoma. Eighteen patients had bilateral hematomas. Of these 9 had normal or equivocal plantar reflexes, 5 had unilateral Babinski signs and 4 had bilateral Babinski signs. Thirty-two patients had unilateral hematomas. In this group 10 had normal or equivocal plantar reflexes, 16 had unilateral Babinski signs, of which 9 were on the same side as the hematoma and 7 were on the side opposite to the hematoma, and 6 had bilateral Babinski signs.

The abdominal reflexes were absent in three fifths of our patients. The sensory status could not be accurately evaluated because of the mental clouding present in most of our patients. Aphasia was present in 6 patients; all had left sided hematomas; 2 of these had, in addition, hematomas on the right side. Twenty-two patients had no skull fracture. Of these, 7 had bilateral hematomas and 15 had unilateral hematomas. Twenty-eight patients had skull fractures; of these, 10 had hematomas under the site of fracture, 10 had bilateral hematomas, 6 had hematomas on the side opposite to the fracture and 2 had fractures on both sides of the skull; 1 of the latter had bilateral hematomas. Air studies were deemed necessary to help localize the hematoma in 12 of our patients, and in 2 of these bilateral hematomas were found at operation but not revealed by the air encephalogram. Electroencephalograms were requested to help in the localization of hematomas in 8 patients. We found it diagnostically accurate in 4 instances.

The pupillary sign, often cited as diagnostic, was helpful in localizing the hematoma in less than half of our cases.

The neurologic data demonstrate that the Babinski sign and the changes in abdominal reflexes are in them-

selves poor hematoma-localizing signs. It is therefore important to do bilateral trephines for all patients suspected of subdural hematoma.

There was shifting of the neurologic signs, chiefly reflex and pupillary changes, from side to side in 45 of our 50 cases. This usually occurred early in the course of the illness.

Progression of signs occurred in 43 patients.

POSTOPERATIVE RESULTS

Twenty patients died. This large number of deaths is partly explained by the fact that many had other complicating injuries and many were in poor condition because of their alcoholism.

Postoperative psychiatric findings were of special interest. Normal or but slight change in psychiatric status was observed in 14 patients. These persons were well enough to return to work. They had amnesia for their injury and for the immediate preoperative and postoperative periods. Some had slight emotional dullness. All in this group were correctly oriented, and their memory, behavior and judgment were normal.

Aphasia was a residual finding in 4 patients, and this aphasic defect persisted for at least three months.

Mood disturbance was pronounced in 6 patients. Four of these had euphoria, 1 was depressed and 1 had a persistent chronic excitement. Some of the recovered patients had mild alteration of mood, which was chiefly emotional dullness, but this was not sufficiently outstanding to impair recovery and return to useful employment.

Paranoid trends as a residual disturbance occurred in only 1 patient.

Some degree of post-traumatic mental change was noted in 15 patients. Four of these were mentioned in the aphasic group; 6 had mood disturbances which colored the intellectual performance, and 5 showed chiefly amnesic defects. In the amnesic group confabulations were prominent and there was impairment in orientation and memory. Emotionally these patients were dull and slow to react. When given specific test situations they fatigued easily, could not focus their attention and, as a result, did badly. They were emotionally disturbed by their inadequacies, which were brought to focus by these tests, and this further impaired their capabilities. The physician may be easily deceived by casual observation of such patients, because they avoid complex situations and their defects therefore do not become apparent.

Psychologic testing in some of our cases showed that: 1. There is disturbance in gestalt perception; an inability to distinguish figure from background so that misinterpretations and judgment defects occur. 2. There is a striking discrepancy between the poor showing in abstract thinking as contrasted with their ability in concrete performance. The best preserved functions are those related to vocabulary, general information and rote memory. 3. Rorschach tests confirm the clinical findings of a definite reduction of the patient's capacity to appreciate total concepts as indicated by the reduction in the number of responses.

SUMMARY AND CONCLUSIONS

Preoperative and postoperative neuropsychiatric observations were made in 50 proved cases of subdural hematoma. The following facts emerged:

1. Some mental disturbances, varying in degree from slight to severe, occurred in all patients with acute subdural hematomas.

2. The mental disturbance in patients with acute subdural hematoma is the most striking neuropsychiatric observation. Some patients with minimal neurologic disturbances often have severe mental disturbances.

3. Progression of neuropsychiatric signs is the most important diagnostic feature of acute subdural hematoma.

4. The so-called lucid intervals commonly described in textbooks were found in only half of our group. An equal number of patients go into progressive coma. The term "lucid interval" used in this relation is often incorrect. The intervals would be more accurately designated periods of return of consciousness. Half the patients who have such a period of return of consciousness are not lucid at the time but have an impaired sensorium.

5. Delirium is an uncommon occurrence in subdural hematoma. When delirium occurs as an isolated symptom it is more often related, in our experience, to other types of head injury.

6. All patients who showed a confabulatory amnesic picture had in addition to their subdural hematoma bloody or xanthochromic spinal fluid.

7. Our postoperative results were as follows: Twenty patients died; 14 were returned to normal or had only slight disturbance that was not enough to impair their ability to return to their usual work; 1 had paranoid delusions that persisted for three months. Some degree of post-traumatic mental change was noted in 15 patients; 4 of these were aphasic three months after operation, 6 had mood disturbances sufficiently severe to impair severely their behavior and 5 showed amnesic defects.

8. The chief defect in the group with mental changes postoperatively was found on psychologic testing to show a disturbance of abstract thinking, with a relatively good preservation of concrete thinking. There is a striking reduction in spontaneous ideation. There are also disturbances in perception of gestalts and outstanding alteration in the mood. Similar neuropsychiatric changes have been described following other types of head injury.

9. Every patient who has had a subdural hematoma removed should have a detailed neuropsychiatric examination, including psychologic testing. One often finds defects that are not apparent on cursory examination.

Thirtieth Street and First Avenue.

Organic and Functional Approach to Rehabilitation.—

Confusion has arisen between the organic and functional approach to rehabilitation. Under the guise of practicality, some workers in this field have laid the major stress on physical factors and reactions. Their viewpoint may imply that the rehabilitation of a person incapacitated by defective hearing, for example, might well begin and end in such a corrective measure as a mechanical hearing aid. On the other hand, those who approach rehabilitation from a dynamic functional viewpoint lay fundamental stress on the feeling life of the individual and study the psychological content of the problem. An electric method in which the correction of physical defect, when feasible, is supplemented by a study of the psychic effects provides the modern *modus operandi*.—Davis, John E.: *Principles and Practice of Rehabilitation*, New York, A. S. Barnes & Co., Inc., 1943.

PENTOTHAL SODIUM SLOUGH

PREVENTION BY PROCAINE HYDROCHLORIDE

CAPTAIN CHARLES K. ELDER

AND

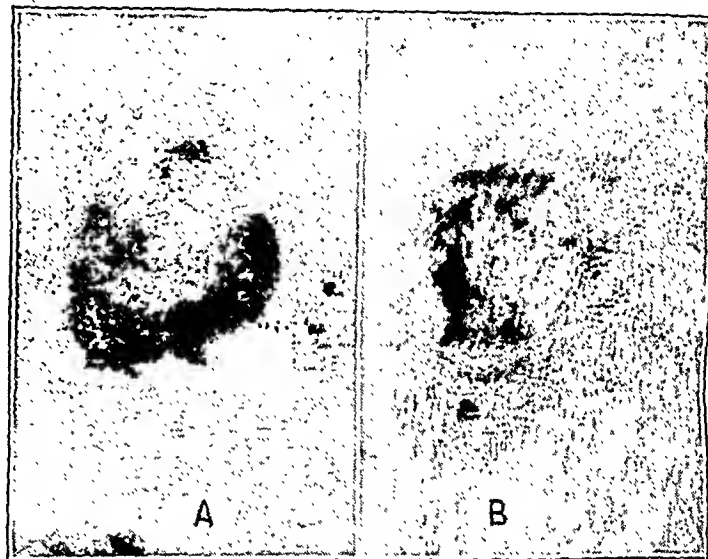
CAPTAIN EVERETT M. HARRISON

MEDICAL CORPS, ARMY OF THE UNITED STATES

The propensity of pentothal sodium (thiopentobarbital) to cause violent tissue reactions if injected subcutaneously is well known. The severity of such reactions varies from a simple fibrous thickening about the site of injection to malignant sloughing requiring many months to heal. Both extremes have been clinically observed in patients.

It seemed profitable to attempt to find some method of preventing these complications. Ideally extravascular extravasation should not occur, but unfortunately it does happen.

Experimental procedures and results are described which strongly suggest that tissue reactions resulting from subcutaneous extravasation of pentothal solution can be prevented.



A, typical early slough formation (forty-eight hours) following injection of 5 per cent pentothal sodium; B, area injected with 5 per cent pentothal sodium and 1 per cent procaine hydrochloride, showing absence of tissue reaction and regrowth of hair (seven days after injection).

EXPERIMENTAL PROCEDURES

Rabbits were chosen as suitable experimental animals. The skin of the back was shaved and aseptically prepared, and the areas were injected with 5 cc. of a freshly prepared sterile aqueous solution of pentothal sodium. Three dilutions were employed: 2.5 per cent, 5 per cent and 10 per cent solutions. Paired injections were made with each dilution tested. Into one of each of the paired sites 5 cc. of a solution of 1 per cent procaine hydrochloride in isotonic solution of sodium chloride was immediately infiltrated. Care was taken to distribute the procaine throughout the "injection tumor" and to deposit it about the periphery as well.

At the site of all injections of pentothal sodium not infiltrated with procaine, tissue reactions were observed. The milder grades of reaction resulted from the presence of 2.5 per cent solution in the tissue. The reactions consisted of mild redness of the skin with local thickening. More severe reactions were noted at the sites of injection of 5 per cent solution. The most severe reactions were characterized by an early zone

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of demarcation and subsequent slough. The latter reactions occurred as a result of injections of 10 per cent solution. The control sites of injections of pentothal sodium which had been infiltrated with procaine hydrochloride universally failed to show any degree of tissue reaction. The skin of these areas so treated stood out in sharp contrast. The velvet texture of the normal rabbit skin was retained, and shaved areas rapidly exhibited growth of hair.

Twelve rabbits were given injections, and a total of sixteen injections performed as described. All animals were observed for a sufficiently long period to insure against delayed tissue reactions being missed. None were observed.

THEORETICAL CONSIDERATIONS

Tissue reaction in response to subcutaneous injection of pentothal sodium may be due to several causes. The explanation of the fact that procaine hydrochloride nullifies the irritant action of pentothal sodium is not clear.

Primarily, pentothal sodium is probably irritant by virtue of its alkalinity in aqueous solution. The pH of such a solution is 9.0 or greater, while the pH of 1 per cent procaine solution in isotonic solution of sodium chloride is 6.23.¹ It seems possible that neutralization occurs between the alkaline and acid solutions. However, procaine hydrochloride is known to break down in tissue fluid, with liberation of free base.² This fact tends to refute the neutralization hypothesis.

Prevention of irritation might also be explained by the fact that the addition of procaine in approximately equal quantities constitutes simple dilution of pentothal sodium in the tissues. However, it will be recalled that reactions with pentothal sodium alone occurred in response to solutions of 2.5 per cent.

Immediate tissue ischemia has been noted clinically about the site of extravasated pentothal sodium. The area of blanching seemed to extend far beyond the "injection tumor." It seems logical to conclude that local vasospasm can and does occur as a result of pentothal irritation. This may constitute the first step in a vicious circle terminating in death of the tissue.

If it is true that local vasospasm is a factor, it is also probable that the beneficial action of procaine is directly a result of local vasodilatation.

The precise explanation of this phenomenon is possibly of only academic interest. The clinical application of results seems to be of more practical importance.

POSSIBILITIES OF CLINICAL APPLICATION

Opportunity to check the experimental results in patients has not been afforded. It is suggested on the basis of observation of tissue reactions that anesthetic solutions of pentothal sodium be employed in dilutions of 2 per cent or less. Although extreme care is exercised, extravascular injection seems to occur. If such a complication should occur during the administration of a 2 per cent solution of pentothal sodium, the resultant tissue reaction is certain to be less than would occur as a result of leakage of stronger solutions.

It is recommended that, if such extravasations occur, the area be immediately infiltrated with 1 per cent solution of procaine hydrochloride. In addition, it seems important literally to surround the area with a "moat" of procaine solution.

1. Merck & Company, Inc., Rahway, N. J.: Personal communication to the authors.

2. Goodman, L., and Gilman, A.: *The Pharmacological Basis of Therapeutics*, New York, Macmillan Company, 1941, p. 289.

The possibility exists that the favorable reaction of procaine in preventing tissue necrosis might be extended to apply as well in other solutions that are accidentally extravasated during intravenous medication, e. g. arsenical compounds, diodrast, vein sclerosing solutions and others.

The application of moist heat has long been a useful method of producing vasodilatation and reactive hyperemia. It should not be neglected as an adjunct in the treatment of this complication.

SUMMARY AND CONCLUSIONS

1. Subcutaneous injections of 2.5, 5 and 10 per cent solutions of pentothal sodium result in reactive and destructive tissue lesions in the skin of rabbits.

2. Immediate infiltration of areas injected with pentothal sodium with 1 per cent solution of procaine hydrochloride in isotonic solution of sodium chloride effectively prevents tissue damage in the rabbit.

3. Precise explanation of the prevention of tissue reaction by procaine is not understood. The logical explanation seems to lie in its vasodilating properties.

4. Pentothal sodium should not be employed in dilutions exceeding 2 per cent.

5. Areas of extravasation resulting from extravascular injection of pentothal sodium should be immediately infiltrated with 1 per cent solution of procaine hydrochloride in isotonic solution of sodium chloride.

6. A moderate degree of heat should be applied to the entire extremity involved in order to prolong vasodilatation for at least the first twenty-four hours.

Clinical Notes, Suggestions and New Instruments

COMPLETE TRANSVERSE CERVICAL MYELITIS CAUSED BY TRAUMATIC HERNIATION OF AN OSSIFIED NUCLEUS PULPOSUS

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Cervical herniation of the nucleus pulposus is not rare. Stookey,¹ Love and Walsh,² Mixer³ and many others have written extensively on this abnormality. However, rupture of the annulus fibrosus and protrusion of an ossified intervertebral disk causing complete transverse myelitis in the cervical region is rare.

Horwitz⁴ in 1940 showed that degenerative changes in the cervical intervertebral substance occurred in 76 per cent of 50 unselected male cadavers examined by both roentgenograms and careful dissection. The average age at death was 56 years (the age of the subject of the present report) and the range was from 46 to 80 years. Narrowing of the joint space, irregularity of the articular margins, sclerosis of adjacent vertebral spongiosa and marginal proliferation of facets are the main changes

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Dr. P. B. Price, Dr. O. A. Ogilvie and Dr. C. A. Swinyard of the University of Utah Medical School gave help and advice.

1. Stookey, B.: Compression of the Spinal Cord Due to Ventral Extradural Cervical Chondromas, *Arch. Neurol. & Psychiat.* **20**: 275 (Aug.) 1928; Compression of Spinal Cord and Nerve Roots by Herniation of the Nucleus Pulposus in the Cervical Region, *Arch. Surg.* **40**: 417 (March) 1940.

2. Love, J. G., and Walsh, M. N.: Protruded Intervertebral Disks: A Report of 100 Cases in Which Operation Was Performed, *J. A. M. A.* **111**: 396 (July 30) 1938; Intraspinal Protrusion of Intervertebral Disks, *Arch. Surg.* **40**: 454 (March) 1940.

3. Mixer, W. J., and Ayer, J. B.: Herniation or Rupture of the Intervertebral Disk into the Spinal Canal, *New England J. Med.* **213**: 385 (Aug. 29) 1935. Mixer, W. J., and Barr, J. S.: Rupture of the Intervertebral Disk with Involvement of the Spinal Canal, *ibid.* **211**: 210 (Aug. 2) 1934.

4. Horwitz, M. T.: Degenerative Lesions in the Cervical Portion of the Spine, *Arch. Int. Med.* **65**: 1178 (June) 1940.

of degeneration found by Horwitz. He reported complete ossification with fusion of adjoining vertebrae in 3 of the 50 cases studied.

Despite the apparent frequency of this pathologic process I have not been able to find in the literature a case similar to the one here presented.



Fig. 1.—Lateral view of the cervical spine. Narrowing of the intervertebral spaces between the 4th and 5th cervical and between the 5th and 6th cervical vertebrae is evident. Irregular calcification and osteophytic projections from the anterior margins of the 4th, 5th and 6th cervical vertebrae can be seen. One cannot diagnose fracture or dislocation.

REPORT OF CASE

History.—A Mexican laborer aged 56 was admitted complaining of pain in his shoulders and neck and inability to move his legs and hands, Aug. 7, 1943. He had had an attack of epistaxis of about three days' duration about one month before admission. At that time he bled large amounts and became weak and lethargic.

Two weeks before admission the patient was stopped by the police because he was staggering down the street. He was released when it was seen that he was not drunk. He complained of pain in his chest and back at this time.

Apparently in good health the earlier part of the evening before admission to the hospital, the patient was found early the next morning on the floor paralyzed in all four limbs. There was an unreliable account that he fell backward, hitting the back of his neck on a nearby chair, but evidence of trauma was circumstantial except for abrasions on his arm and face. It has not been ascertained whether he fell because of syncope or whether he slipped and fell. His past health had been excellent.

Examination.—The important physical and laboratory observations consisted of irregular breathing without respiratory distress, a pulse rate of 60 and a blood pressure of 80/55. There were a few abrasions on the left forearm, left cheek and left eye. The patient showed some pain on flexion or extension of the neck. There was tenderness on pressure over the 5th, 6th and 7th cervical spines. There was complete flaccid paralysis of both legs and musculature below the 5th cervical segment. Complete paralysis was present in the hands and wrists, but the biceps could be moved weakly. There was loss of sensation of all types below the 6th cervical segment. Deep tendon

reflexes of the legs and the abdominal reflexes were absent. Tendon reflexes of the left arm were absent. The right radial, biceps and triceps reflexes were present but hypoactive. There was loss of tone of the rectal sphincter and urinary incontinence. The white blood cell count was 10,500 on admission; this rose to 21,000 during a subsequent attack of parotitis and was 18,000 at death fifteen days after admission. The urine was normal except for a trace of albumin. The blood Wassermann reaction was negative. The electrocardiogram was normal. The cerebrospinal fluid showed normal pressure and dynamics. The spinal fluid Wassermann reaction was negative. The fluid was of normal appearance; when a spinal tap was performed later there was moderate increase in globulin and the colloidal gold curve was 4433321000. X-ray examination showed no evidence of fracture or displacement of either the cervical or the dorsal spine. There was narrowing of the intervertebral 3d to 4th cervical space and 4th to 5th cervical space, and irregular calcification in these spaces. There was a questionable Schmorl's node in the inferior portion of the body of the 4th cervical. There was sclerosis of the vertebral spongiosa of the 4th, 5th and 6th cervical vertebrae and irregularity of the articulating margins of these vertebrae (fig. 1).

Course in the Hospital.—The patient was placed in a head halter with slight extension of the neck and 5 pounds of traction, on the assumption that he may have sustained a dislocation of a cervical vertebra and that in transportation to the hospital this dislocation had been reduced. It was at first thought that he might have had a coronary occlusion resulting in a fall and a cervical injury. A cervical fracture was apparently ruled out by roentgenograms. Thrombosis of the anterior spinal artery also was considered.

Exploration was deemed inadvisable because the patient had come to the hospital about twenty hours after injury. In addition



Fig. 2.—Appearance at autopsy of the spinal canal in the cervical region, taken from the posterior aspect. The herniated intervertebral disk substance between the 4th and 5th cervical vertebrae is obvious. One sees the adjacent hemorrhage and fraying of the posterior longitudinal ligament. The arrow points to the zone of pressure on the spinal cord.

tion the pressure and dynamics of the cerebrospinal fluid were normal, and roentgenograms revealed no evidence of fracture or dislocation.

After a few days the traction was discontinued. The neurologic status did not change appreciably.

Four days after admission he suddenly ceased breathing but was revived with stimulants and artificial respiration. The abdomen became progressively more distended.

Ten days after admission acute parotitis developed, the temperature rising to 101 F. Remission followed x-ray treatment and rigid mouth care. Decubitus ulcers developed on the but-



Fig. 3.—The ossified disk itself. This was removed without difficulty simply by cutting a few strands of the posterior longitudinal ligament and lifting it out with forceps. Its consistency was between hard fibrous tissue and the spongiosa of a vertebral body.

tocks and hips. Slight pitting edema of the legs and trunk was present.

On the fifteenth day the temperature went to 105 F., his respirations became irregular and rapid and he died quietly.

Autopsy.—The brain exhibited multiple arterial thromboses in the cerebrum, as well as thrombosis of the left internal carotid and middle meningeal vessels. It was thought that these features had been present only a short time. One must speculate whether they were embolic, cachectic or agonal in origin.

The heart showed fatty infiltration of the myocardium of the right side, a mild healed rheumatic valvulitis, and poor quality to most of the heart muscle. The coronaries were mildly sclerotic and showed thrombosis of the recurrent branch of the left coronary, the descending branch posteriorly and the proximal portion of the right coronary. There was an induced infarction of the posterior and lateral aspects of the left ventricular wall. These coronary thromboses seemed quite recent, having occurred certainly since admission.

Opening the spinal column revealed excessive mobility at the 4th to 5th and 5th to 6th cervical vertebrae. The ligaments of the articulation in this region were frayed, but the vertebrae were in normal alignment.

The epidural appearance of the cord was normal, but a soft defect could be palpated in the substance of the cord opposite the space between the 4th and 5th cervical vertebrae. The dura and the cord were divided three segments below this level and reflected upward. Directly anterior to this softened area in the cord there was a hard, irregularly calcified intervertebral

disk which on slight flexion of the head would bulge about 1 cm. into the lumen of the spinal column. Obviously the herniated disk was responsible for the area of softening. Hematomyelia was not present grossly (fig. 2).

The disk itself was easily lifted from its bed, and it could be completely removed by cutting a few fibers of the posterior longitudinal ligament. It measured 1 by 1.5 by 0.5 cm., was hard and bony in appearance and was reddened by old hemorrhagic infiltration (fig. 3).

The posterior longitudinal ligament covering the other exposed intervertebral segments was intact, and there was no bulging or herniation of disk substance in any other region.

Pathologic Condition of the Cervical Spinal Cord.—Figure 4 shows profound degenerative changes induced in the distal spinal cord. This section was taken 5 cm. caudally from the zone of pressure on the cord and was stained by a modification of the Marchi technic. Magnification is approximately 10 diameters.

The dorsal funiculus exhibits intense degeneration in the areas of the peripheral fasciculus cuneatus and the fasciculus gracilis. One found moderate degeneration in the deeper zones of the fasciculus cuneatus and the comma tract of Schultz.

In the lateral and ventral funiculi there was diffuse and moderate degeneration involving most of the tracts both ascending and descending. It seems probable that the area of contusion of the cord was greater than was thought to be true from the gross appearance. In particular the corticospinal tracts, both ventral and lateral, showed definite demyelination. One also saw degenerative change in the rubrospinal, ventral and lateral spinothalamic, tectospinal, spinocerebellar, lateral and medial vestibulospinal and spinotectal tracts.

With these changes before one it was not difficult to understand the corresponding clinical picture indicating profound damage to the spinal cord. It seems remarkable that the patient lived as long as he did.

COMMENT

This case presented a great amount of damage to the spinal cord. I have been unable to find a similar case in which, in the absence of fracture or dislocation, there was complete loss of cord function below the level of pressure on the cord, or one in which the protruding disk was so completely ossified.

It is interesting, but practically unimportant, to speculate whether a coronary heart attack precipitated the fall and its resultant trauma to the cord. Certainly the neurologic picture was entirely explained by the aforementioned pathologic condition in the spinal cord at the 4th to 5th cervical vertebrae.

The story of the patient being seen staggering down the street a few weeks before the final cord injury leads one to believe that cord pressure began at that time with herniation through the posterior longitudinal ligament.

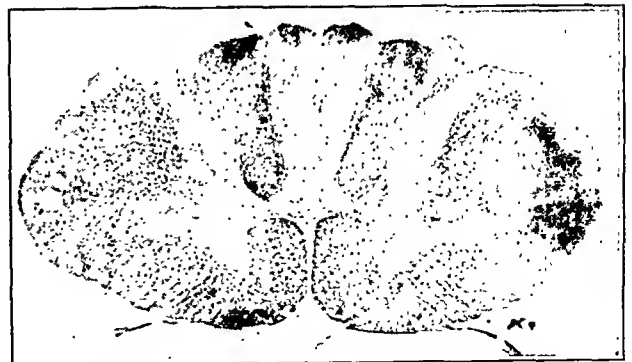


Fig. 4.—Modification of the Marchi staining technic. Reduced from a photomicrograph with a magnification of 10 diameters. Profound degenerative changes with demyelination throughout most of the tracts are present. See text for more complete description.

It is possible that, if this patient had been examined by oblique roentgenograms with the head flexed, bony spurs, if not the ossified nucleus pulposus, would have been seen projecting into the spinal canal. At autopsy it could be seen that flexion of the neck would cause the loose intervertebral substance to protrude a centimeter or more into the canal.

if any, failures before the National Board. In these consolidated figures the percentage of failures for approved medical schools in the United States was 1.4.

Of the Canadian graduates, 15.7 per cent failed state tests and 14.3 per cent the combined tests. Only 31 graduates of foreign faculties of medicine were admitted to the National Board's final examination, while 1,031 were examined by state licensing boards. The National Board does not admit to its examinations the graduates of unapproved medical schools in the United States.

The total of all examined before medical licensing boards was 8,392, of whom 7,478 passed and 914, or 10.9 per cent, failed. For both groups—state boards and the National Board—9,622 were examined; 8,691 passed and 931, 9.7 per cent, failed. These combined figures reduced the total proportion of licensure failures last year by 1.2 per cent. Twenty-six schools in the United States had no failures in either group.

FAILURES

It will be noted in table 7 that the United States is divided into two groups—the thirty states in which approved four year medical schools are located and those, including Alaska and Hawaii, which have no approved medical school within their boundaries. Presented is the number who failed state board examinations and were graduates of a medical school located in the state in which they were examined and, for comparison, the number of graduates licensed in a given state who obtained their professional training in schools in other states.

The three approved medical schools of Massachusetts had no failures last year in that state, while 21.3 per cent of those who obtained their medical education in 22 other approved schools failed. In New York 3.4 per cent of those who studied medicine in eight of the nine schools located in that state who appeared for licensure in New York in 1943 failed, and 9.5 per cent who obtained their medical training in thirty-four schools located in other states failed. Only 23 physicians failed examinations in the state in which the medical school they attended was located, and twenty schools had no failures from schools within their boundaries.

On the other hand, the percentage of failures in four states (District of Columbia, Kentucky, Michigan and Oregon) was greater in the case of graduates of schools in those states than it was for graduates of schools outside the state.

Practically all states require the applicant to receive a general average of 75 per cent and 50 per cent in any one subject. In case of failure in not more than two subjects the applicant is entitled to another examination in those subjects within twelve months. A few states consider such individuals as conditioned in the subjects in which they fail and do not report them to the Council as failures. In these instances they are not considered in the calculations in this study. When their grades are raised after a successful test they are recorded among those who passed.

In nineteen states having no medical school only two reported failures, namely Florida and New Hampshire. Forty-four schools were represented at Florida examinations with 6.1 per cent failures. In New Hampshire, with four schools represented, 25 per cent failed.

In another table dealing exclusively with failures (table 8) the data are further subdivided by the number of candidates who were licensed after previous failure. The figures are presented for three groups, namely

graduates of approved medical schools, foreign faculties of medicine and unapproved institutions. These groups are classified according to the number licensed after failing a state board examination once and after two or more failures and indicates whether the single failures have been in the state of licensure or elsewhere; the table also indicates whether multiple failures have been in the state where licensed and/or elsewhere. The total number of candidates examined and licensed, or granted licenses by reciprocity or endorsement, in each state is also shown.

TABLE 7.—Licensure Failures by Graduates of Approved Schools Located in the State Where Examined and Elsewhere, 1943

	Total No. Examined of All U.S. Schools	No. Failures of Schools In State	No. Schools In State Represented	Per Cent Failed	No. Failures of Schools Out of State	No. Schools Out of State Represented	Per Cent Failed	Total Per Cent Failed in All U. S. Schools
Arkansas.....	65	0	1	0.0	0	3	0.0	0.0
California.....	473	0	4	0.0	1	43	0.2	0.2
Colorado.....	101	0	1	0.0	0	10	0.0	0.0
Connecticut.....	45	0	1	0.0	2	16	4.4	4.4
Dist. of Columbia.....	43	2	3	4.7	0	15	0.0	4.7
Georgia.....	195	0	2	0.0	0	8	0.0	0.0
Illinois.....	272	1	4	0.4	1	18	0.4	0.7
Indiana.....	229	0	1	0.0	0	8	0.0	0.0
Iowa.....	110	1	1	0.9	6	5	5.5	6.4
Kansas.....	85	0	1	0.0	0	4	0.0	0.0
Kentucky.....	155	1	1	0.6	0	2	0.0	0.6
Louisiana.....	228	1	2	0.4	1	11	0.4	0.9
Maryland.....	276	1	2	0.4	2	16	0.7	1.1
Massachusetts.....	61	0	3	0.0	13	22	21.3	21.3
Michigan.....	298	1	2	0.3	0	10	0.0	0.3
Minnesota.....	276	0	1	0.0	0	34	0.0	0.0
Missouri.....	413	0	2	0.0	0	15	0.0	0.0
Nebraska.....	147	0	2	0.0	0	0	0.0	0.0
New York.....	204	10	8	3.4	28	24	9.5	12.9
North Carolina.....	114	0	2	0.0	0	19	0.0	0.0
Ohio.....	463	0	3	0.0	2	21	0.4	0.4
Oklahoma.....	114	0	1	0.0	0	4	0.0	0.0
Oregon.....	54	3	1	5.6	2	11	3.7	9.3
Pennsylvania.....	464	2	6	0.4	3	30	0.6	1.1
South Carolina.....	90	0	1	0.0	0	5	0.0	0.0
Tennessee.....	200	0	3	0.0	0	3	0.0	0.0
Texas.....	177	0	2	0.0	0	14	0.0	0.0
Vermont.....	18	0	1	0.0	0	2	0.0	0.0
Virginia.....	254	0	2	0.0	0	13	0.0	0.0
Wisconsin.....	163	0	2	0.0	0	16	0.0	0.0
States Without Medical Schools								
Alabama.....	19	0	0	0.0	9	0.0	0.0	0.0
Arizona.....	6	0	0	0.0	6	0.0	0.0	0.0
Delaware.....	9	0	0	0.0	5	0.0	0.0	0.0
Florida.....	132	8	44	6.1	6.1	6.1	6.1	6.1
Idaho.....	8	0	7	0.0	0.0	0.0	0.0	0.0
Maine.....	23	0	12	0.0	0.0	0.0	0.0	0.0
Mississippi.....	110	0	7	0.0	0.0	0.0	0.0	0.0
Montana.....	4	0	4	0.0	0.0	0.0	0.0	0.0
Nevada.....	0	0	..	..	..	..	..	..
New Hampshire.....	4	1	4	25.0	25.0	25.0	25.0	25.0
New Jersey.....	119	0	22	0.0	0.0	0.0	0.0	0.0
New Mexico.....	0	0	..	..	..	..	..	..
North Dakota.....	1	0	1	0.0	0.0	0.0	0.0	0.0
Rhode Island.....	18	0	8	0.0	0.0	0.0	0.0	0.0
South Dakota.....	1	0	1	0.0	0.0	0.0	0.0	0.0
Utah.....	21	0	12	0.0	0.0	0.0	0.0	0.0
Washington.....	44	0	18	0.0	0.0	0.0	0.0	0.0
West Virginia.....	20	0	11	0.0	0.0	0.0	0.0	0.0
Wyoming.....	0	0	..	..	..	..	..	..
Alaska & Hawaii.....	11	0	10	0.0	0.0	0.0	0.0	0.0

Of the 8,276 licentiates in 1943, 571 had previously been unsuccessful before a licensing board. From the approved schools 156 of those licensed had previously failed a state board examination. Seventy failed once before being licensed in a given state and 57 after one failure elsewhere. Twenty-nine received licenses after more than one failure, 11 of whom were registered in the original state, 14 elsewhere; four failed in the state where licensed and elsewhere.

Three hundred and fifty-nine graduates of foreign faculties of medicine and 56 graduates of unapproved schools were licensed after previous failure.

In the computation of these statistics it was noted that 81 graduates of foreign faculties of medicine failed five or more times before licensure, likewise 6 graduates of unapproved institutions failed at least five times

each. Of the foreign graduates 28 had five failures before obtaining a license, 27 had six, 14 failed seven examinations, 4 individuals failed eight, 3 nine, 1 ten times, 3 failed eleven and 1 failed thirteen tests. The 6 graduates of unapproved institutions failed as follows: five tests, 1; six tests, 1; seven tests, 2; eight tests, 1, and 1 failed after thirteen attempts. The majority of these physicians with multiple failures were Massachusetts and New York examinees.

In fourteen states all physicians licensed last year had no failure in a state medical examination before

regard to medical licensure. With the exception of Florida, these states and Hawaii will register diplomates of the National Board of Medical Examiners by endorsement. Those desiring licenses by reciprocity in eighteen states are required to obtain a certificate from the state board of examiners in the basic sciences before being eligible for licensure.

Some kind of reciprocal relationship in medical licensure has been established in forty-four states, the District of Columbia, Alaska and Puerto Rico. Twenty-five of these states, Alaska and Puerto Rico reciprocate

TABLE 8.—Failures Before Medical Licensing Boards by Licentiates, 1943

	Licenses Issued by Examination, Reciprocity or Endorsement	Approved Schools				Foreign Schools				Unapproved Schools				Total Failures by Licentiates, 1943					
		Licensed After One Failure		Licensed After Two or More Failures		Licensed After One Failure		Licensed After Two or More Failures		Licensed After One Failure		Licensed After Two or More Failures							
		Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed	Elsewhere						
Alabama.....	122	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Arizona.....	112	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Arkansas.....	71	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
California.....	706	14	..	4	..	..	1	..	..	..	..	..	..	..	..	..	..	..	41
Colorado.....	93	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Connecticut.....	143	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	17
Delaware.....	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
District of Columbia.....	96	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
Florida.....	129	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Georgia.....	103	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Idaho.....	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Illinois.....	506	8	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	29
Indiana.....	279	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Iowa.....	57	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	6
Kansas.....	105	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Kentucky.....	115	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
Louisiana.....	279	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Maine.....	12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
Maryland.....	192	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12
Massachusetts.....	315	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	63
Michigan.....	259	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
Minnesota.....	212	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Mississippi.....	106	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
Missouri.....	257	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	6
Montana.....	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Nebraska.....	162	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Nevada.....	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
New Hampshire.....	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
New Jersey.....	206	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
New Mexico.....	17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
New York.....	912	21	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	269
North Carolina.....	164	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
North Dakota.....	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Ohio.....	269	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
Oklahoma.....	72	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Oregon.....	61	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Puerto Rico.....	520	2	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
Rhode Island.....	27	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
South Dakota.....	57	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Tennessee.....	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Texas.....	229	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Utah.....	358	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
Vermont.....	43	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Virginia.....	16	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Washington.....	302	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
Washington, D.C.....	78	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
West Virginia.....	39	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Wyoming.....	222	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Alaska.....	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Totals.....	8,276	70	57	11	14	4	52	28	162	45	42	30	1	25	0	0	0	571	

* Alaska, Hawaii and Virgin Islands.

being registered. There were 1,004 such individuals. With the exception of California, Connecticut, Illinois, Maryland, Massachusetts, New Jersey, New York and Pennsylvania the number of physicians licensed throughout the country in each state after having previously failed was less than 10.

REGISTRATION BY RECIPROCITY AND ENDORSEMENT

Reciprocity and endorsement policies in effect in the United States, Alaska, Hawaii and Puerto Rico are given in tabular form in table 9. Four states—Florida, Idaho, Massachusetts and Rhode Island—as well as Hawaii have not established reciprocal agreements with

with specifically indicated states. Twenty-four of them, including five which have specific reciprocity agreements, as well as the District of Columbia, are given discretionary powers under the medical practice acts. They will register physicians who present credentials which correspond with those required by their respective states at the time such licenses were issued. The states in which diplomates of the National Board of Medical Examiners and retired officers of the government services are accepted for licensure on the basis of these credentials are also indicated. Specific requirements, such as professional practice, oral examination and internship, are recorded, as is also the fee for a

license without written examination. Citizenship prerequisites are also indicated. In some states physicians of Canadian birth are exempt from the citizenship requirement. This is indicated in footnotes. Few states will accept graduates of foreign faculties of medi-

given in table 10. There were 2,275 so registered who presented credentials from other states, the District of Columbia, Canada and foreign countries, the certificate of the National Board of Medical Examiners or one of the government services.

TABLE 9.—Reciprocity

		Reciprocalates with, or Endorses Certificates Granted by																																		
Marginal Number	The Examining Board of	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	Marginal Number				
1	Alabama.....	+																														1				
2	Arizona.....	+	+																														2			
3	Arkansas (regular board).....	+	+	+																													3			
4	California.....	+	+	+	+																												4			
5	Colorado.....	+	+	+	+	+																											5			
6	Connecticut (reg. & homeo. bds.).....	+	+	+	+	+	+																										6			
7	Delaware (regular board).....	+	+	+	+	+	+	+																									7			
8	District of Columbia.....	+	+	+	+	+	+	+	+																								8			
9	Florida.....	No reciprocity or endorsement policies																															9			
10	Georgia.....	+	+	+	+	+	+	+	+																								10			
11	Idaho.....	No reciprocal relations																																11		
12	Illinois.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		12		
13	Indiana.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		13		
14	Iowa.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		14		
15	Kansas.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		15		
16	Kentucky.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		16		
17	Louisiana (reg. & homeo. bds.).....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		17		
18	Maine.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		18		
19	Maryland (reg. & homeo. bds.).....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		19		
20	Massachusetts.....	No reciprocal relations																																20		
21	Michigan.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		21		
22	Minnesota.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		22		
23	Mississippi.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		23		
24	Missouri.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		24		
25	Montana.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		25		
26	Nebraska.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		26		
27	Nevada.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		27		
28	New Hampshire.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		28		
29	New Jersey.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		29		
30	New Mexico.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		30		
31	New York.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		31		
32	North Carolina.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		32		
33	North Dakota.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		33		
34	Ohio.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		34		
35	Oklahoma.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		35		
36	Oregon.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		36		
37	Pennsylvania.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		37		
38	Rhode Island.....	No reciprocal relations																																38		
39	South Carolina.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		39		
40	South Dakota.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		40		
41	Tennessee.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		41		
42	Texas.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		42		
43	Utah.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		43		
44	Vermont.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		44		
45	Virginia.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		45		
46	Washington.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		46		
47	West Virginia.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		47		
48	Wisconsin.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		48		
49	Wyoming.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		49		
50	Alaska.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		50		
51	Hawaii.....	No reciprocal relations																																51		
52	Puerto Rico.....	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		52		

Some states have additional requirements for graduates of schools outside the United States and Canada.

+, indicates reciprocal or endorsement relationships have been established; .. indicates no reciprocal or endorsement relationships have been established.

1. 1st P, first papers required; ⊕, in citizenship column indicates full citizenship required.

2. In most cases there is a small additional recording or registration fee.

3. If state of original license grants similar privileges.

4. Internship accepted in lieu of one year's practice.

5. Professional practice required.

6. No professional practice required.

7. Just preceding application.

8. No basic science reciprocity—examination must be within the state.

9. Basic science certificate required either by reciprocity or examination in addition to basic science subjects of National Board.

10. Reserve officers not eligible.

11. Leading medical schools of Great Britain recognized.

12. Oral examination required when original license is ten or more years old.

13. Applicant must have resided in the state used as basis of application for one year after date on said certificate.

14. Oral examination required.

15. Unless in practice in another state for five years.

16. Actual practice for a period of three years immediately preceding date of application.

17. Practical, clinical examination required.

18. Foreign graduates only.

19. Regular and Homeopathic boards.

20. Licentiates of Florida, Idaho, Massachusetts, Rhode Island and Hawaii not eligible for license by reciprocity.

21. Regular board.

22. Fee same as applicant's state charges if more than \$50.

23. Oral examination required if applicant's state requires it.

24. If an applicant passes the examination in the state from which he transfers after the completion of his internship, no practice is required.

cine on a reciprocal basis. Additional requisites or exemptions are mentioned. The fee for a license on this basis in the majority of states is \$50. This chart will be available in reprint form and has proved to be of material assistance to physicians contemplating locating in another state.

The number of physicians granted licenses in 1943 to practice medicine and surgery without written examination on presentation of satisfactory credentials is

California issued licenses to 355 physicians by this method and New York 279. Four other states endorsed 100 or more candidates, namely Illinois 100, Michigan 105, Ohio 110 and New Jersey 140. The largest number representing the same type of credentials was the group of 651 presenting certificates of the National Board of Medical Examiners. On the basis of the National Board's certificate 215 were certified by New York and 94 by Massachusetts.

More than 100 physicians presenting licenses issued in Illinois and New York were licensed in other states. No physicians holding licenses in Nevada, New Hampshire or New Mexico applied for registration in another state last year. One physician from Delaware, and

on the basis of a license from El Salvador; in Mississippi, an Ontario license; and in North Carolina by endorsement of a license issued in Switzerland.

Seven were admitted to private practice in the Virgin Islands on presentation of satisfactory credentials.

and Endorsement Policies

Marginal Number	Reel	Procatas with, or Endorses Certificates Granted by	Requirements
1	+	New York	Professional Practice
2	+	North Carolina	Citizenship ¹
3	+	North Dakota	Fees, Dollars ²
4	+	Ohio	Miscellaneous
5	+	Oklahoma	
6	+	Oregon	
7	+	Pennsylvania	
8	+	Rhode Island	
9	+	South Carolina	
10	+	South Dakota	
11	+	Tennessee	
12	+	Texas	
13	+	Utah	
14	+	Vermont	
15	+	Virginia	
16	+	Washington	
17	+	West Virginia	
18	+	Wisconsin	
19	+	Wyoming	
20	+	Alaska	
21	+	Puerto Rico	
22	+	At the Discretion of the Board	
23	+	National Board of Medical Examiners	
24	+	U.S. Government Services	
25	+	Basic Science Certificate	
26	+	Internship	
27	+	Professional Practice	
28	+	Citizenship ¹	
29	+	Fees, Dollars ²	
30	+	Miscellaneous	

25. Internship accepted if served in this state.

26. Internship accepted—considered equivalent to two years' practice.
27. Five years' practice.

27. Five years' practice.

28. Conditionally.

29. A two year internship is accepted.

30. Diplomates of National Board not required to have been in practice for three years.

31. Graduates before 1907 required to take oral examination.

32. Clinical examination required.

33. Reciprocity applicants only.

4. Supplemental examination required in certain cases when accepting the examination of a state with whom reciprocal relations have not been established.

35. May be licensed after a special (written) supplemental examination.

36. Fee for license on basis of National Board certificate, \$50.

37. For matriculants after Oct. 15, 1937.

38. Fee, \$20.

39. While on active duty only.

40. Permanent license withheld until completion of citizenship.

41. Graduates of foreign medical schools effective Sept. 15, 1935.
Canadian schools exempted effective Sept. 19, 1939.

42. Graduates of foreign medical schools are no

43. Graduates of foreign medical schools must have fu

43. Graduates of foreign medical schools must have fulfilled all requirements of California prior to admittance to examination for any certificate used as basis of application to California.

44. Graduates of approved schools of Canada eligible.

45. Not applicable to citizens of Canada.

46. Canadian citizens are required to file first papers.

47. Fee, \$15.

48. Same as required of Utah candidates applying for licensure.

49. Diplomates are accepted on basis of reexamination. The question and answer manuscripts from the National Board are submitted for regrading.

50. All applicants must be graduates of a medical school approved by the American Medical Association.

two each from Florida, Idaho, Montana and Rhode Island obtained licenses in other states. Ten physicians were registered on the basis of Canadian or foreign credentials in seven states. One each was licensed in Arizona, New Mexico, New York and Oregon on the basis of a previous license from the Dominion of Canada as well as 3 in North Carolina. One each also was licensed in the District of Columbia

Not included in the table are 27 osteopaths licensed by medical examining boards in seven states. They are omitted since the credentials presented were osteopathic licenses. These osteopaths secured licenses in Indiana 3, Nebraska 1, New Hampshire 1, Oregon 3, Texas 2, Wisconsin 16 and Wyoming 1.

Fourteen retired officers of one of the government services received licenses without written examination

TABLE 10.—Candidates Licensed by Reciprocity and Endorsement, 1943

[illegible]

in six states: California 6, Kentucky 4 and 1 each in Missouri, North Carolina, Texas and Wisconsin.

On the basis of a license from one of the territories 7 physicians were registered in two states—California and New York. Two physicians presented to the California board licenses from Alaska and 4 a certificate issued in Hawaii. One physician secured a New York license, presenting for registration by this method a license from Puerto Rico.

Sixty-five licentiates of New York secured licenses to continue practice in New Jersey. Forty-nine from Illinois and 43 from New York were registered in California.

Diplomates of the National Board of Medical Examiners secured licenses in forty states and Hawaii. Six states endorsed the certificate of 25 or more physicians. The greatest number accepted by any one state was in New York, where 215 diplomates secured licenses to practice medicine.

Fewer than 25 physicians obtained reciprocity licenses in twenty-two states. There has been a noticeable decrease in physicians who migrated to other states, as evidenced by a reduction of 170 as compared with the number so registered in 1942. This is probably a condition related to the war.

LICENTIATES REPRESENTING ADDITIONS TO THE MEDICAL PROFESSION

Licentiates of 1943 representing additions to the physician population of the United States and Hawaii are recorded in table 11. The majority of these licentiates represent recent graduates. As previously mentioned, the figures regarding licentiates represent some candidates examined in previous years whose licenses were withheld pending compliance with a technicality, such as completion of internship and citizenship. Additions to the profession on the basis of reciprocity or endorsement represent physicians without a state license who during the year were certified on the basis of the certificate of the National Board of Medical Examiners and to a lesser extent acceptance of credentials from one of the government services, Canada and foreign countries.

The figures in table 11 represent additions to the medical profession in the United States. However, the majority of the recent graduates are now in the military services and only a small percentage of them can be considered to be additions to the present civilian physician population. It is not known how many of these are in civilian practice.

There were 5,952 additions to the medical profession in 1943. The number removed by death in the same period was 3,382. It would appear, therefore, that the physician population in the United States last year was increased by 2,570. In view of the accelerated curriculum with two classes graduating from most schools in 1943, one might expect that additions to the profession should be considerably higher. This in reality is the case at the present time. However, many physicians who obtained M.D. degrees in December of 1943 were not able to receive licenses until early in the year 1944, owing to administrative details. An accurate analysis can be made in 1945 when data for the current year are available.

The greatest number of physicians in any one state, 683, was added to the profession in New York. Both California and Pennsylvania added more than 400, and Illinois and Missouri more than 300. The normal

increase in Missouri is about 200, but in this state two 1943 graduating classes are represented in the figures for last year. By comparison with 1942 figures² it can be noted that considerably more were licensed and represent additions to the profession in 1943 in the cases of California, Indiana, Massachusetts, Minnesota, Mississippi, Missouri, North Carolina, South Carolina, Virginia and Wisconsin. In New York 220 fewer appear in the tabulations as the result of the reduction in the physicians graduated from foreign faculties of medicine.

No one was added to the profession in Nevada, North Dakota and Wyoming, while in thirteen states between

TABLE 11.—*Licentiates Representing Additions to the Medical Profession, 1943*

	Examination	Reciprocity and Endorsement	Total
Alabama.....	31	1	32
Arizona.....	5	0	5
.....	65	0	65
.....	441	17	458
.....	65	2	67
.....	43	27	70
Delaware.....	6	0	6
District of Columbia.....	13	24	37
Florida.....	31	0	31
Georgia.....	95	1	96
Idaho.....	3	0	3
Illinois.....	364	10	374
Indiana.....	231	2	233
Iowa.....	33	2	35
Kansas.....	86	0	86
Kentucky.....	75	0	75
Louisiana.....	225	0	225
Maine.....	22	0	22
.....	126	3	130
.....	223	75	298
.....	183	3	191
.....	227	8	235
.....	76	1	77
.....	316	6	322
Montana.....	2	0	2
Nebraska.....	70	1	71
Nevada.....	0	0	0
New Hampshire.....	5	1	6
New Jersey.....	102	25	127
New Mexico.....	1	0	1
New York.....	594	99	693
North Carolina.....	114	1	115
North Dakota.....	0	0	0
Ohio.....	246	8	254
Oklahoma.....	46	1	47
Oregon.....	31	2	33
Pennsylvania.....	434	10	444
Rhode Island.....	14	6	20
South Carolina.....	83	0	83
South Dakota.....	4	0	4
Tennessee.....	147	24	171
Texas.....	104	2	106
Utah.....	13	0	13
Vermont.....	10	2	12
Virginia.....	237	0	237
Washington.....	41	2	43
West Virginia.....	15	1	16
Wisconsin.....	159	1	160
Wyoming.....	0	0	0
Hawaii.....	4	2	6
Totals.....	5,581	371	5,952

100 and 299 received initial licenses. Twenty-eight states and Hawaii added fewer than 100.

Of the 5,952 licentiates constituting additions to the medical profession last year, 5,581 secured their licenses by examination and 371 by endorsement of credentials. The latter represent in the main diplomates of the National Board of Medical Examiners.

Increases in the physician population arranged in nine geographic divisions are shown in table 12. The Middle Atlantic and East North Central group of states added the greatest number, over 1,200 each. More than 700 were added in two groups—the West North Central states and the South Atlantic states. The fewest number of physicians, 91, were added to the

medical profession in the Mountain states. Two states in this group—Nevada and Wyoming—did not add a single physician to the medical profession last year.

Calculations representing additions to the medical profession for a nine year period including 1943 are presented in table 13. The greatest addition in nine

TABLE 12.—*Licentiatees Representing Additions to the Medical Profession Grouped in Geographic Divisions, 1943*

	Exami- nation	Reciprocity and Endorsement	Total
New England			
Maine.....	22	0	22
New Hampshire.....	5	1	6
Vermont.....	10	2	12
Massachusetts.....	223	75	298
Rhode Island.....	14	6	20
Connecticut.....	43	27	70
	317	111	428
Middle Atlantic			
New York.....	554	99	653
New Jersey.....	102	25	127
Pennsylvania.....	434	10	444
	1,120	134	1,254
East North Central			
Ohio.....	246	8	254
Indiana.....	231	2	233
Illinois.....	364	10	374
Michigan.....	188	3	191
Wisconsin.....	159	1	160
	1,188	24	1,212
West North Central			
Minnesota.....	227	8	235
Iowa.....	33	2	35
Missouri.....	316	6	322
North Dakota.....	0	0	0
South Dakota.....	4	0	4
Nebraska.....	70	1	71
Kansas.....	80	0	80
	736	17	753
South Atlantic			
Delaware.....	6	0	6
Maryland.....	136	3	139
District of Columbia.....	13	24	37
Virginia.....	237	0	237
North Carolina.....	15	1	16
South Carolina.....	114	1	115
Georgia.....	88	0	88
Florida.....	95	1	96
	755	30	785
East South Central			
Kentucky.....	75	0	75
Tennessee.....	147	21	171
Alabama.....	31	1	32
Mississippi.....	76	1	77
	329	26	355
West South Central			
Arkansas.....	65	0	65
Louisiana.....	225	0	225
Oklahoma.....	46	1	47
Texas.....	191	2	193
	530	3	533
Mountain			
Montana.....	2	0	2
Idaho.....	3	0	3
Wyoming.....	0	0	0
Colorado.....	65	2	67
New Mexico.....	1	0	1
Arizona.....	5	0	5
Utah.....	13	0	13
Nevada.....	0	0	0
	89	2	91
Pacific			
Washington.....	41	2	43
Oregon.....	31	3	34
California.....	441	17	458
	513	22	535
Territory			
Hawaii.....	4	2	6
Totals.....	5,581	371	5,952

In nine years there were 53,947 physicians added to the profession; 49,583 were licensed after a successful written examination and 4,364 by reciprocity or endorsement. In the same period 80,393 licenses were issued, 56,003 by examination and 24,390 by endorsement of credentials. Thus 26,446 licenses were obtained by physicians who had previously been licensed to practice medicine.

Estimated figures indicate that on Feb. 1, 1944 the number of physicians in continental United States, including those licensed in 1943, was 186,496. Excluding physicians who are in military service, engaged in full time hospital work, retired, not in practice or engaged in full time teaching, there remain about 100,000 physicians in private practice, some of whom are part time teachers.

LICENSURE UNDER THE ACCELERATED PROGRAM

All states, Alaska, Hawaii and Puerto Rico have adjusted their licensure legislation or board rulings, where such adjustments were required, so that graduates under the accelerated medical program are eligible for admission to practice. Legislation was required in several states. The necessary amendments

TABLE 13.—*Licentiatees Representing Additions to the Medical Profession, 1935-1943*

Year	Exami- nation	Reciprocity and Endorsement	Total
1935.....	5,099	411	5,510
1936.....	5,548	629	6,177
1937.....	5,812	612	6,424
1938.....	5,759	501	6,260
1939.....	5,584	460	6,044
1940.....	5,432	455	5,887
1941.....	5,230	473	5,712
1942.....	5,529	452	5,981
1943.....	5,581	371	5,952
Totals.....	49,583	4,364	53,947

were made to the medical practice acts in these states in 1942 and 1943. During the calendar year 1943 physicians who completed at least part of their medical courses under the accelerated plan were examined for medical licensure in all but seven states. None applied for licensure in Delaware, Nevada, New Hampshire, New Mexico, North Dakota, South Dakota, Wyoming, Alaska, Hawaii or the Virgin Islands.

ACCELERATION OF PREMEDICAL COURSES

The minimum requirement for admission to approved medical schools since 1918 has been two years of college training, and in 1938 three years was recommended. In November 1942 the Council on Medical Education and Hospitals recommended that for the duration of the war premedical education, including satisfactory courses in physics, biology and chemistry, be included within two calendar years. Such a program was adopted by practically all medical schools of the country. The Army Specialized Training and Navy V-12 premedical programs call for less than two years of college training, but in both of these programs the studies are continuous and provide for the student carrying more than the normal peacetime studies per semester. Both the Army and Navy programs provide for work well in excess of the sixty semester hours constituting the normal two academic years of medical study.

years was in 1937. In 1943 the figure decreased by 29 over that of the previous year. It is believed that the fluctuations in these figures for the period shown is due mainly to the numbers of graduates of foreign faculties of medicine. As has already been pointed out, the number of graduates of approved medical schools examined for licensure increased in 1943.

With the exception of California, Connecticut and Nebraska (table 14) the state licensing boards, by statute in the majority of instances, require that an applicant for licensure must present evidence of having completed two years of college training. California now requires one year, and New Mexico has been

TABLE 14.—Requirements of Preliminary Training by Medical Licensing Boards

Two Years or More of College

Alabama	Louisiana	Oklahoma
Alaska	Maine	Oregon
Arizona	Maryland	Pennsylvania
Arkansas	Massachusetts	Puerto Rico
Colorado	Michigan	Rhode Island
Delaware	Minnesota	South Carolina
District of Columbia	Mississippi	South Dakota
Florida	Missouri	Tennessee
Georgia	Montana	Texas
Hawaii	Nevada	Utah
Idaho	New Hampshire	Vermont
Illinois	New Jersey	Virginia
Indiana	New Mexico	Washington
Iowa	New York	West Virginia
Kansas	North Carolina	Wisconsin
Kentucky	North Dakota	Wyoming
	Ohio	

One Year of College

California	Connecticut*
High School Graduation or Its Equivalent	
Nebraska	

* Two year college requirement for graduates after 1946.

added to the states having the two year requirement. Connecticut will require the two year college requirement for medical school graduates after 1946. With the exception of eleven states and Hawaii the licensing boards reported that the medical practice act permits the acceptance of premedical training completed on an accelerated basis or the Army or Navy premedical programs. Most states indicated that their board will accept applicants graduated under the accelerated plan, of approved medical schools, thereby recognizing the certification of the premedical training by the dean of the medical school. In six states—Florida, Maine, Nebraska, North Dakota, Wisconsin and Hawaii—and the District of Columbia the licensing board has the authority to evaluate the premedical credentials even though the medical practice acts specify a stated premedical requirement. Of the remaining five states Delaware reported that it must secure a ruling from

TABLE 15.—Internship Required by Medical Schools

College of Medical Evangelists
University of Southern California School of Medicine
Stanford University School of Medicine
Northwestern University Medical School
University of Minnesota Medical School
Duke University School of Medicine
University of Alberta Faculty of Medicine
University of Manitoba Faculty of Medicine
Dalhousie University Faculty of Medicine
University of Montreal Faculty of Medicine

the attorney general; in Iowa the state university is authorized to evaluate the credentials; in New Jersey this responsibility rests with the Commissioner of Education; New York requires the Medical Student's Qualifying Certificate; credentials in Virginia are evaluated by the State Department of Education. One state, Maine, stated the premedical requirement to be two years according to the medical practice act. In this state medical school graduates under the accelerated curriculum were examined in 1943.

It would appear that the accelerated premedical requirements or the Army and Navy premedical programs will probably offer no licensure difficulties.

REQUIRED INTERNSHIPS

The licensing boards requiring a hospital internship, and the medical schools exacting this requirement for the M.D. degree are shown in tables 15 and 16.

Six schools in the United States require an internship for graduation, and these schools will accept the nine month internship now in effect in all hospitals offering this training. Medical schools in Canada have eight month internships.

The medical licensing boards of twenty-three states, the District of Columbia, Alaska, Hawaii and Puerto Rico require an internship. In the past year the requirement of an internship has been added in New Mexico. Some states require the internship of gradu-

TABLE 16.—Internship Required by Medical Licensing Boards of All Candidates

Alabama	Montana	Puerto Rico
Alaska	Nevada	Rhode Island
Delaware	New Hampshire	South Dakota
District of Columbia	New Jersey	Utah
Hawaii	New Mexico	Vermont
Idaho	North Dakota	Washington
Illinois	Oklahoma	West Virginia
Iowa	Oregon	Wisconsin
Michigan	Pennsylvania	Wyoming

Some states require the internship of graduates of medical faculties abroad and of reciprocity or endorsement applicants.

TABLE 17.—Nine Month Internship

Accepted as Fulfilling Internship Requirement	Additional Three Months in Civilian Hospital or Military Service Required	
	Will Give Examination at End of Nine Months	Will Not Give Examination Until Completion of Year's Service
Alaska	Alabama ¹	Illinois
Delaware	District of Columbia ¹	New Hampshire
Idaho	Iowa ¹	New Mexico
Michigan ¹	New Jersey ¹	
Montana ¹	North Dakota	
Nevada	Oklahoma ¹	
Pennsylvania ¹	Oregon	
West Virginia	Puerto Rico	
Wyoming	Rhode Island ¹	
	South Dakota ¹	
	Utah ¹	
	Vermont ¹	
	Washington ¹	
	Wisconsin	

¹ Will also give examination on completion of the medical course but withhold license until internship is completed.

ates from schools abroad and of applicants for reciprocity or endorsement.

At least during the war emergency, and because of the 9-9-9 house officer plan, eight states and Alaska (table 17) will accept a nine month internship as fulfilling the internship requirement. Twelve states, the District of Columbia and Puerto Rico require an additional three months in a civilian hospital or military service and will withhold the license until this is completed but will permit applicants for licensure to write the examination on completion of the nine month internship. In three states physicians are not eligible to take the examination until after completion of a year's internship, three months of which may be in the military service. Officers seeking licenses in these three states must delay licensure until after the war or seek furloughs to take the examinations. In the past it has been possible for officers to obtain furloughs for this purpose.

Five states (Connecticut, Maryland, Missouri, Texas and Virginia) whose laws do not require an internship withhold the licenses of candidates from schools requiring an internship for the M.D. degree until the internship is completed. In these states the examination may be taken at any time after completion of the medical school course.

TABLE 18.—Temporary Permits, 1943

State	Permit Valid For:	Permits Granted
Arizona	3 mos.	98
Delaware	1 yr.	2
Florida	6 mos. after cessation of hostilities	12
Georgia	Next board meeting	12
Kentucky	1-5 yrs.	8
Louisiana	Next board meeting	3
Maine	Duration of war	7
Nevada	2 yrs.	14
New Mexico	Next board meeting	13
North Dakota	Duration of war	7
Pennsylvania	6 mos. after cessation of hostilities	2
Virginia	Next board meeting	0
Washington	Next board meeting	32
West Virginia	Next board meeting	16
Wyoming	Next board meeting	5
Total		244

A few of the medical schools and licensing boards maintain their own list of hospitals acceptable for intern training, but the list of approved internships compiled by the Council on Medical Education and Hospitals is generally used.

LICENSURE FOR THE RELOCATED PHYSICIAN

Removal of physicians from civilian practice has resulted in a shortage of physicians in critical areas, especially in some industrial and rural sections of the country. To assist physicians attempting to relocate in such areas the licensing boards of fifteen states provide for the issuance of temporary permits or certificates to practice medicine. These states, the length of the validity of the permit and the number of permits granted during the last calendar year are shown in table 18.

The New Jersey medical practice act exempts from its requirements a lawfully qualified physician and surgeon of another state taking charge temporarily of the practice of a lawfully qualified physician of New Jersey during his absence from the state. Such permission may be granted by the board of medical examiners for a period of not less than two weeks nor more than four months but not to exceed one year in the aggregate.

TABLE 19.—Annual Registration

Alaska	Hawaii	New York
Arizona	Idaho	North Dakota
Arkansas	Iowa	Oklahoma
California	Kansas	Oregon
Colorado	Louisiana	Pennsylvania
Connecticut	Minnesota	Texas
Delaware	Missouri*	Utah
District of Columbia	Montana	Washington
Florida	Nebraska	Wisconsin
Georgia	Nevada	Wyoming

* Biennial registration.

ANNUAL REGISTRATION

Twenty-seven states, the District of Columbia, Alaska and Hawaii require physicians to register their license annually. In table 19 are listed the states which exact this requirement. Wisconsin was added to the list during the calendar year 1943. West Virginia no longer requires annual registration of medical licenses. With one exception, Colorado, the requirement has

been waived for physicians in military service. In some instances legislative action was necessary to obtain a waiver.

CANDIDATES EXAMINED, 1939-1943

The numbers of candidates examined for medical licensure in the United States and its territories and possessions for the last five years, 1939-1943, are given in table 20. For each year there is recorded the number who passed and failed licensing examinations. Totals for the five year period and the percentage of candidates who failed also are given.

During this period 38,791 examinations were given; 32,396 were successful and 6,395, 16.5 per cent, failed.

TABLE 20.—Candidates Examined, 1939-1943

	1939		1940		1941		1942		1943		Totals for Five Years	
	P	F	P	F	P	F	P	F	P	F	P	F
Alabama.....	14	0	26	0	26	3	34	0	20	0	120	3 2.4
Arizona.....	11	1	20	1	17	0	9	0	6	0	63	2 3.1
Arkansas.....	68	0	58	0	60	0	62	0	65	0	313	0 0.0
California.....	353	19	396	29	400	11	450	15	507	12	2,145	56 3.9
Colorado.....	69	3	75	4	54	4	68	3	113	3	370	17 4.3
Connecticut.....	53	47	53	33	80	36	59	31	62	12	307	150 34.1
Delaware.....	11	2	15	0	18	0	7	0	9	0	60	2 3.2
Dist. Columbia..	54	0	40	2	33	0	27	0	42	2	205	4 1.9
Florida.....	172	27	181	6	143	7	110	8	129	8	655	56 7.4
Georgia.....	90	0	88	0	94	2	96	0	105	0	563	2 0.4
Idaho.....	24	8	40	1	30	0	12	1	9	1	115	11 8.7
Illinois.....	523	18	542	24	474	46	421	48	301	20	2,351	161 6.1
Indiana.....	112	0	125	0	120	0	128	0	233	0	718	0 0.0
Iowa.....	101	2	67	5	67	0	44	1	106	5	388	16 4.0
Kansas.....	85	0	92	0	92	0	99	0	86	0	454	0 0.0
Kentucky.....	88	0	77	0	84	0	85	0	161	1	495	1 0.2
Louisiana.....	153	0	154	1	145	1	175	0	228	2	855	4 0.5
Maine.....	42	6	32	14	38	12	42	6	29	3	183	41 15.3
Maryland.....	187	16	175	18	177	0	165	11	206	14	1,000	68 6.4
Massachusetts...	217	237	338	290	254	288	201	251	254	294	1,324	1,389 51.2
Michigan.....	217	0	247	0	230	0	196	0	298	2	1,197	2 0.2
Minnesota.....	217	1	196	0	240	0	199	1	290	0	1,142	2 0.2
Mississippi.....	21	0	42	0	38	0	43	2	113	1	257	3 1.2
Missouri.....	211	0	179	0	199	0	182	1	421	1	1,169	2 0.2
Montana.....	11	0	9	0	7	1	7	1	4	0	38	2 5.0
Nebraska.....	78	0	84	0	92	0	77	2	135	15	486	17 3.4
Nevada.....	4	0	3	1	5	2	1	0	0	1	13	4 23.5
New Hampshire...	14	2	9	1	10	1	3	3	5	4	41	11 21.2
New Jersey.....	237	109	179	36	155	29	110	10	150	11	631	195 19.0
New Mexico.....	2	0	0	1	2	0	0	0	1	0	5	1 16.7
New York.....	1,024	635	956	1,088	888	968	1,071	600	633	443	4,572	3,854 45.7
North Carolina..	57	0	65	0	54	0	77	0	115	0	368	0 0.0
North Dakota...	17	1	24	0	15	1	6	1	1	0	63	3 4.5
Ohio.....	369	15	305	16	263	14	274	6	624	22	1,835	73 3.7
Oklahoma.....	43	0	47	0	54	0	54	0	114	0	312	0 0.0
Oregon.....	26	0	33	0	22	0	45	0	50	5	176	5 2.8
Pennsylvania....	548	10	478	24	446	18	456	21	475	12	2,403	65 3.4
Rhode Island....	25	0	19	0	22	0	35	0	20	0	121	0 0.0
South Carolina..	48	0	41	0	45	0	46	0	91	0	271	0 0.0
South Dakota...	15	0	7	0	9	0	5	0	6	0	42	0 0.0
Tennessee.....	193	0	188	1	199	4	100	0	201	0	971	5 0.5
Texas.....	208	15	209	25	177	13	289	15	105	4	1,078	72 6.3
Utah.....	17	0	9	0	15	0	14	0	27	0	82	0 0.0
Vermont.....	17	0	21	1	18	0	24	1	18	0	98	2 2.0
Virginia.....	113	1	142	1	146	3	145	1	264	1	810	7 0.9
Washington.....	59	1	48	0	69	1	60	0	53	1	289	3 1.0
West Virginia....	33	0	38	0	34	0	27	0	23	0	155	0 0.0
Wisconsin.....	111	0	113	0	120	0	124	1	176	0	644	1 0.2
Wyoming.....	8	1	16	1	8	0	0	0	0	0	32	2 5.5
U.S. Territories & Possessions....	30	4	30	2	63	8	15	2	14	2	152	18 10.6
Total Examined.	7,754		7,925		7,539		7,181		8,392		38,791	
Passed.....	6,493		6,290		6,057		6,078		7,478		32,396	
Failed.....	1,261		1,635		1,482		1,103		914		6,395	
Percentage Failed	16.3		20.6		19.7		15.4		10.9		16.5	

New York leads in the number of examinations given. In this state there were 4,572 successful tests in a five year period. Other states examining more than 2,000 included Pennsylvania 2,403, Illinois 2,351 and California 2,145. More than 1,000 were examined in seven other states and passed, namely Maryland, Massachusetts, Michigan, Minnesota, Missouri, Ohio and Texas.

The greatest percentage of failures occurred in three states, Massachusetts with 51.2 per cent, New York with 45.7 per cent and Connecticut with 34.1 per cent. The high percentage in Massachusetts is due to the fact that the licensing board has been required by law to admit to its examinations the graduates of sub-standard schools, many of whom repeatedly fail. How-

ever, graduates of such schools may not be eligible for the licensing examination in this state in the future. New York's high percentage of failures may be attributed to the large number of graduates of foreign faculties of medicine, who likewise repeatedly fail. Connecticut's candidates have included a relatively large proportion of foreign graduates, accounting partially for their high failure rate. Other high failure figures occurred in Maine, Nevada (with only 17 examined), New Hampshire, New Jersey and New Mexico. On the other hand, thirty-four states failed less than 5 per cent in the five year period. These include ten states which had no failures: Arkansas, Indiana, Kansas, North Carolina, Oklahoma, Rhode Island, South Carolina, South Dakota, Utah and West Virginia.

The percentage of failures in all states has decreased from 20.6 in 1940 to 10.9 in 1943, which is the lowest figure since 1937.

These figures represent examinations given and not individuals. A candidate who fails more than once in a state in a given year is counted only once, but should he also fail in a succeeding year he is counted in that year also. The same is true of successful candidates who migrate to other states. This group represents a recapitulation of the statistics computed annually and assembled for comparative purposes. It gives only a fair approximation of the number of physicians added to the profession in five years by the written examination method. Table 11 gives the corrected compilation of the number of physicians representing additions to the medical profession for this period.

TABLE 21.—Registration, 1904-1943

Year	Examined	Passed	Per-centage Failed	Reciprocity or Endorsement	Total Registered
1904.....	7,056	5,693	19.3	1,005	6,698
1905.....	7,178	5,688	20.8	394	6,082
1906.....	8,010	6,373	20.7	1,502	7,875
1907.....	7,279	5,731	21.3	1,427	7,158
1908.....	7,775	6,089	21.7	1,284	7,373
1909.....	7,295	5,865	19.6	1,381	7,246
1910.....	7,011	5,719	18.4	1,610	7,359
1911.....	6,964	5,582	19.8	1,243	6,825
1912.....	6,880	5,467	20.5	1,273	6,740
1913.....	6,453	5,253	18.6	1,292	6,545
1914.....	5,579	4,379	21.5	1,439	5,818
1915.....	5,334	4,307	18.5	1,399	5,906
1916.....	4,878	4,151	14.9	1,353	5,504
1917.....	4,753	4,084	14.1	1,360	5,444
1918.....	3,667	3,184	13.2	1,047	4,231
1919.....	4,750	4,074	14.2	2,546	6,620
1920.....	4,796	4,062	15.3	2,558	6,620
1921.....	4,825	4,228	12.4	2,186	6,414
1922.....	4,031	3,539	12.2	2,073	5,612
1923.....	4,727	4,028	14.8	2,405	6,433
1924.....	5,392	4,756	11.8	1,923	6,679
1925.....	6,002	5,450	9.2	1,861	7,311
1926.....	5,770	5,314	7.9	1,935	7,269
1927.....	5,389	5,002	7.2	2,176	7,178
1928.....	5,458	5,090	6.7	2,228	7,318
1929.....	5,629	5,282	6.2	2,420	7,702
1930.....	5,571	5,255	5.7	2,366	7,621
1931.....	5,611	5,263	6.2	2,211	7,476
1932.....	5,675	5,247	7.6	1,885	7,132
1933.....	5,673	5,244	7.6	1,989	7,233
1934.....	6,144	5,627	8.4	2,160	7,788
1935.....	6,443	5,859	9.1	2,196	8,055
1936.....	6,917	6,223	10.0	2,775	8,998
1937.....	7,334	6,604	10.0	3,203	9,807
1938.....	7,461	6,589	11.7	2,936	9,545
1939.....	7,754	6,493	16.3	2,872	9,865
1940.....	7,925	6,290	20.7	2,864	9,154
1941.....	7,539	6,057	19.7	2,758	8,815
1942.....	7,181	6,078	15.4	2,466	8,544
1943.....	8,392	7,478	10.9	2,302	9,780

REGISTRATION, 1904-1943

A study of totals and percentages for the forty years 1904-1943 is included in table 21. This tabulation covers physicians registered by written examination and by reciprocity or endorsement of credentials. There is no definite trend in the numbers annually registered from 1906 to 1933, although in 1918 the number regis-

tered dropped to the all time low record of 4,231. After 1933 there was an upward trend for a time, followed by a decline which terminated in 1942. The decrease of more than 1,200 in 1918 was due to the sudden withdrawal of physicians and recent graduates from civilian life during World War I. By contrast,

TABLE 22.—Graduates of Approved Schools and Others Registered, 1922-1943

Year	Graduates of Approved Schools		Others		Totals
	Number	Per Cent of Total	Number	Per Cent of Total	
1922.....	4,519	80.5	1,093	19.5	5,612
1923.....	5,196	80.8	1,237	19.2	6,433
1924.....	5,687	85.1	992	14.9	6,679
1925.....	6,314	86.4	997	13.6	7,311
1926.....	6,441	83.7	828	11.3	7,269
1927.....	6,410	89.4	768	10.6	7,178
1928.....	6,585	90.1	733	9.9	7,318
1929.....	7,003	91.0	699	9.0	7,702
1930.....	7,011	92.1	610	7.9	7,621
1931.....	6,932	92.8	544	7.2	7,476
1932.....	6,675	93.7	457	6.3	7,132
1933.....	6,774	93.7	459	6.3	7,233
1934.....	7,171	92.1	617	7.9	7,788
1935.....	7,362	91.5	693	8.5	8,055
1936.....	7,932	88.2	1,066	11.8	8,998
1937.....	8,389	85.6	1,418	14.4	9,807
1938.....	8,315	87.1	1,230	12.9	9,545
1939.....	8,067	86.2	1,298	13.8	9,365
1940.....	7,779	85.0	1,375	15.0	9,154
1941.....	7,766	88.1	1,049	11.9	8,815
1942.....	7,237	84.9	1,287	15.1	8,544
1943.....	8,591	87.8	1,189	12.2	9,780
Totals.....	154,176	88.2	20,639	11.8	174,815

in 1943 the number registered increased almost 1,300 over the preceding year. The increase is a result of the accelerated curriculum and the universal effort on the part of the medical leaders of the country to maintain a steady flow of physicians for both civilian and military practice. In 1943 more physicians were examined than in any previous year. A large majority of these were recent graduates who secured licenses before assuming military duties.

There was a decrease in registration on the basis of credentials in 1943. This can be attributed to present conditions. The need for physicians in all communities encourages physicians still remaining in civilian practice to remain where they have been rather than to seek relocation.

The percentage of failures gradually dropped from 19.3 in 1904, when a great many proprietary medical schools were functioning, to 5.7 in 1930. This decrease in the percentage of failures is one of the very evident results from the improvement in the standards of medical education. With the migration of physicians to this country beginning in 1936 and the resultant licensure difficulties, the percentage of failures again began to rise, until in 1940 they surpassed even the 1904 figure. This rise is also attributable to the inability of graduates of unapproved schools to obtain licensure successfully without failure. In the last two years the number of foreign graduates applying for licensure has considerably decreased.

In analyzing this table it should be remembered that the figures represent multiple examinations by individuals in some instances rather than actual additions to the profession.

GRADUATES OF APPROVED SCHOOLS AND OTHERS REGISTERED, 1922-1943

The educational fitness of physicians registered for the practice of medicine is recorded in table 22. In compiling these data, schools rated in classes A and B by the Council on Medical Education and Hospitals

of the American Medical Association since the first classification of schools in 1907 are included in the approved group. In the column headed "Others" the figures represent physicians who graduated prior to 1907, graduates of foreign faculties of medicine, class C graduates, osteopaths given recognition by medical

TABLE 23.—*Graduates of Unapproved Medical Schools Registered, 1938-1943*

	Examination						Reciprocity and Endorsement						Total
	1938	1939	1940	1941	1942	1943	1938	1939	1940	1941	1942	1943	
Arizona.....	1	2	0	0	0	0	0	0	0	0	0	0	3
Arkansas.....	1	0	0	0	0	0	1	0	0	0	0	0	2
California.....	0	0	1	1	0	0	0	1	0	0	0	0	3
Florida.....	2	1	0	0	0	0	0	0	0	0	0	0	3
Illinois.....	60	51	48	51	51	57	0	0	0	0	0	0	318
Indiana.....	0	0	0	0	0	0	3	1	2	0	1	0	7
Iowa.....	0	0	0	0	0	0	0	0	0	1	0	0	1
Kentucky.....	0	0	0	0	0	2	1	2	2	0	0	0	7
Massachusetts	58	79	98	90	105	177	0	0	0	0	0	0	607
Mississippi....	0	0	0	0	1	0	0	0	0	0	0	0	1
Missouri.....	0	0	0	1	0	1	1	0	0	0	0	0	3
New Jersey....	7	0	0	0	0	0	4	13	8	0	0	0	36
New Mexico....	1	0	0	0	0	0	2	0	2	0	0	0	5
New York.....	0	0	0	0	0	0	8	12	8	0	0	0	28
Ohio.....	32	36	0	0	0	0	0	0	0	0	0	0	68
Pennsylvania..	4	1	5	0	0	0	0	0	0	0	0	0	10
Texas.....	1	4	6	0	0	0	0	0	0	0	0	0	11
Virginia.....	0	1	0	0	0	1	0	0	0	0	0	0	2
Wisconsin.....	0	0	0	0	0	0	0	0	0	0	0	1	1
Hawaii.....	0	0	0	1	0	1	0	0	0	0	0	0	2
Puerto Rico...	0	0	1	0	0	0	0	0	0	0	0	0	1
Totals.....	167	175	159	144	157	239	20	20	27	9	1	1	1,119

licensing boards and graduates of schools not approved by the Council. In 1928 the classification of schools in class B and C by the Council was discontinued, and graduates of medical schools have since been classified as approved or unapproved.

There were 9,780 candidates registered in 1943, of whom 8,591, 87.8 per cent, represented graduates of approved schools and 1,189, 12.2 per cent, the group designated as others.

In twenty-two years 174,815 were registered, including 154,176 approved graduates, 88.2 per cent, and 20,639 others, 11.8 per cent. The improved standards of medical education are again evident in a study of these totals and percentages. Since 1922 the number of graduates of approved schools has increased well beyond 4,500, representing more than 80 per cent of those annually registered. Until the influx of foreign graduates in 1936, those in the second group since 1924 have been fewer than 1,000.

In computing the figures for 1943 it is revealed that of the 9,780 candidates registered 8,561 represented graduates of approved or class A medical schools, 30 were graduates of schools rated in class B at the time of graduation, 499 were graduates of class C or unapproved medical schools and 690 were foreign graduates and graduates of medical schools before 1907, when the first classification of medical schools was made.

GRADUATES OF UNAPPROVED MEDICAL SCHOOLS REGISTERED, 1938-1943

Recorded in table 23 are data regarding graduates of those schools which do not meet the standards outlined by the House of Delegates of the American Medical Association and enforced by the Council on Medical Education and Hospitals who were registered as medical licentiates in the United States, Hawaii and Puerto Rico by written examination or endorsement of credentials from 1938 to 1943 inclusive.

In the six years shown, nineteen states, Hawaii and Puerto Rico registered 1,041 by examination and 78 by endorsement of credentials. In 1943 there were 239 registered by examination in six states, namely Illinois, Kentucky, Massachusetts, Missouri, Virginia and Wisconsin. Two states, Illinois and Massachusetts, registered 234 of the 239 reported. One physician was licensed by endorsement in Wisconsin. Another was examined in Hawaii.

The large numbers of unapproved graduates licensed in Illinois and Massachusetts result from the nature of the licensing laws in these states. However, 47 graduates of substandard schools have been licensed in other states in the past four years.

GRADUATES OF SCHOOLS OF OSTEOPATHY REGISTERED BY MEDICAL EXAMINING BOARDS, 1938-1943

The number of graduates of schools of osteopathy granted the legal right to practice medicine or surgery or both by the examining boards of fourteen states for a six year period is given in table 24. There were 813 such individuals registered since 1938, 696 by examination and 117 by endorsement of credentials.

In 1943 twelve states registered 227 by examination and 27 by recognition of their credentials, 254 in all.

This is a far larger figure than at any other time in recent years and is attributable to the 158 who were licensed in Ohio in 1943 under the new medical practice act. The numbers in Nebraska may be expected to increase in 1944 because of the new law in that state. The texts of the new laws in these states is as follows:

Nebraska.—The 1943 law, approved May 25 of that year, provides by section 20 (amending section 71-1403, Compiled Statutes of Nebraska, 1929) as follows:

"Any person now licensed to practice osteopathy in the state of Nebraska may, if application is made prior to July 1, 1948 and upon payment of the prescribed fee, take the first regular examination given after the application is made before the Board of Examiners in Medicine and Surgery. If such person is successful in passing such examination, he or she shall receive a license

TABLE 24.—*Graduates of Schools of Osteopathy Registered by Medical Boards, 1938-1943*

	Examination						Reciprocity and Endorsement						Total
	1938	1939	1940	1941	1942	1943	1938	1939	1940	1941	1942	1943	
Colorado.....	18	22	15	2	9	9	0	0	0	0	0	0	75
Connecticut....	0	1	0	0	0	5	0	0	0	0	0	0	6
Dist. Columbia	1	0	1	0	2	0	0	0	0	2	1	0	7
Indiana.....	2	4	7	3	4	2	0	0	1	3	2	3	31
Massachusetts..	10	10	27	26	13	5	0	0	0	0	0	0	91
Nebraska.....	0	0	0	0	0	6	0	0	0	0	0	1	7
New Hampshire	2	0	2	0	0	0	1	0	2	0	1	1	9
New Jersey....	46	45	47	32	9	18	0	0	0	0	0	0	197
Ohio.....	0	0	0	0	0	158	0	0	0	0	0	0	158
Oregon.....	1	1	0	2	1	0	1	1	1	2	5	3	18
Texas.....	22	19	20	13	17	18	37	17	1	1	1	2	163
Virginia.....	1	0	0	3	0	0	0	0	0	1	0	0	5
Wisconsin.....	0	0	1	2	5	6	3	0	0	0	1	16	34
Wyoming.....	0	0	1	0	0	0	1	2	0	0	2	1	7
Totals.....	108	102	121	83	60	227	43	20	5	9	13	27	813

to practice medicine and surgery in the state of Nebraska; Provided, however, that any doctor of osteopathy, now licensed and practicing in the state of Nebraska and who is able to show satisfactory evidence of having taken and successfully passed the regular examination in medicine and surgery, shall be issued a license hereunder upon payment of the prescribed fee."

Ohio.—Laws of 1943 (House Bill No. 112, approved April 29, 1943).

1. An osteopath who obtains a license under the 1943 act is authorized to practice "osteopathic medicine and surgery."

2. The new law provides in section 1274 as follows:
 "An osteopathic physician who has successfully passed an examination in surgery before the state medical board and has received a certificate from said board authorizing him to practice osteopathy and surgery and has deposited said certificate with the probate judge as required by law is hereby authorized to continue the practice of osteopathy and surgery in this state. An osteopathic physician licensed to practice osteopathy in this state but who has not passed an examination in surgery before the state medical board is hereby authorized to continue the practice of osteopathy and minor and orthopedic surgery, but he shall not practice major surgery, which shall be defined to mean the performance of those surgical operations attended by mortality from the use of the knife or other surgical instruments, until he shall have passed the examination in surgery given by the state medical board. An osteopathic physician licensed to practice in this state at the effective date of this act shall not prescribe or administer drugs, except anesthetics and antiseptics, until such time as he shall obtain a certificate under the provisions of section 1274 of the General Code. The certificate of an osteopathic physician may be refused, revoked or suspended as provided in section 1275 of the General Code of Ohio."

PHYSICIANS EXAMINED ON THE BASIS OF CREDENTIALS OBTAINED IN COUNTRIES OTHER THAN THE UNITED STATES AND CANADA

The Council on Medical Education and Hospitals does not grade or classify medical schools outside the United States and Canada. It does not attempt to evaluate institutions which it is not in a position to visit to determine if they meet the minimum essentials of an acceptable medical school as outlined by the Council. This was true even before the war.

For a period of twelve years beginning in 1926 the credentials of physicians coming from abroad were verified by the Council through official correspondence with the medical schools directly or through the diplomatic services. Prior to the onset of the war in Europe it was necessary to discontinue this effort, and on the licensing boards rests the responsibility of evaluating the credentials presented by these graduates. In the 1942 edition of the American Medical Directory a symbol in the biographic data of foreign graduates indicates when the information given is the licensing board's record of the credential accepted as meeting the educational qualifications for licensure. The absence of the symbol may be interpreted to indicate that official verification is on file in the office of the Council.

The requirements of candidates for medical licensure in the United States, Alaska, Hawaii and Puerto Rico on the basis of credentials obtained in countries other than the United States and Canada are given in table 25. Eighteen states report that the holders of such credentials are not eligible for licensure. Eighteen states, Alaska, Hawaii and Puerto Rico require full citizenship and ten states naturalization papers as a condition precedent to taking the examination. California, Indiana and the District of Columbia make no reference to citizenship. In some states the recognition or non-

TABLE 25.—Requirements of Candidates for Medical Licensure
on the Basis of Credentials Obtained in Countries
Other Than the United States and Canada

	Admitted to Examination	Admitted by Endorsement of State License *	Citizenship	Basic Science Certificate	Internship in Hospital in United States	Further Medical Training	Examination Fee, Dollars	Other Require- ments
Alabama.....	+	..	+	..	+	..	10	1
Arizona.....	+	Not accepted	+	..	+	..	10	1
Arkansas (reg. and homeo. boards).....	+	Not accepted	+	..	+	..	10	1
California.....	+	..	1st P	+	+	..	25	11
Colorado.....	+	..	1st P	+	+	..	25	11
Delaware (regular board)...	+	..	+	+	+	..	25	11
District of Columbia.....	+	..	+	+	+	..	25	11
Florida.....	+	..	+	+	+	..	25	11
Georgia.....	+	..	+	+	+	..	25	11
Idaho.....	+	..	+	+	+	..	25	11
Illinois.....	+	..	1st P	+	+	..	25	11
Indiana.....	+	..	+	+	+	..	25	11
Iowa.....	+	..	+	+	+	..	25	11
Kansas.....	+	..	+	+	+	..	25	11
Kentucky.....	+	Not accepted	+	..	+	..	25	11
Louisiana (reg. and homeo. boards).....	+	Not accepted	+	..	+	..	25	11
Maine.....	+	+	+	..	+	..	27	11
Maryland (reg. and homeo. boards).....	+	..	1st P	..	+	..	25	11
Massachusetts.....	+	..	1st P	..	+	..	25	11
Michigan.....	+	..	+	+	+	..	25	11
Minnesota.....	+	Not accepted	+	..	+	..	25	11
Mississippi.....	+	..	+	..	+	..	15	..
Montana.....	+	Not accepted	+	..	+	..	15	..
Nebraska.....	+	Not accepted	+	..	+	..	25	..
Nevada.....	+	Not accepted	+	..	+	..	25	..
New Hampshire.....	+	..	+	..	+	..	20	..
New Jersey.....	+	..	+	..	+	..	25	..
New Mexico.....	+	Not accepted	+	..	+	..	25	..
New York.....	+	..	1st P	..	..	..	25	11
North Carolina.....	+	Not accepted	+	..	..	..	25	11
North Dakota.....	+	..	+	25	11
Ohio.....	+	..	+	25	11
Oklahoma.....	+	Not accepted	+	..	..	..	25	11
Oregon.....	+	Not accepted	+	..	..	..	25	11
Pennsylvania.....	+	..	1st P	..	+	..	25	11
Rhode Island.....	+	..	1st P	+	+	..	25	11
South Carolina.....	+	Not accepted	+	..	+	..	25	11
South Dakota.....	+	..	1st P	+	+	..	20	..
Tennessee.....	+	Not accepted	+	..	+	..	25	..
Texas.....	+	+	+	25	..
Utah.....	+	Not accepted	+	..	..	..	25	..
Vermont.....	+	Not accepted	+	..	+	..	25	11
Virginia.....	+	..	+	15	+	..	25	11
Washington.....	+	..	1st P	+	+	..	25	11
West Virginia.....	+	Not accepted	+	..	..	..	25	11
Wisconsin.....	+	Not accepted	+	..	..	..	25	11
Wyoming.....	+	Not accepted	+	..	..	..	25	11
Alaska.....	+	+	+	..	+	..	25	11
Hawaii.....	+	+	+	..	+	..	25	11
Puerto Rico.....	+	+	+	..	+	..	25	11

* Refer to chart of "Reciprocity and Endorsement Policies" for further data.

1. Certificate of National Board of Medical Examiners and licensure in country in which school of graduation is located.
2. Internship or one year in medical school in United States.
3. Certificate of National Board of Medical Examiners.
4. For graduates of last five years; if more than five years \$50.
5. Residence of one year in Delaware.
6. If similar privileges are accorded lieutenants of District of Columbia by licensing agency of jurisdiction from which applicant comes.
7. Senior year in class A medical school in United States.
8. Graduates of European medical colleges after July 1, 1936, Switzerland excepted, shall not be eligible for licensure. Graduates prior to this date may be accepted for the regular written and clinical examination after completing rotating internships in approved hospitals in Illinois.
9. Enemy aliens not accepted.
10. Application must be filed six months prior to date of examination.
11. Licensed to practice medicine and surgery in country in which school of graduation is located, otherwise required to complete senior year in approved medical school in United States.
12. Diplomates of National Board of Medical Examiners eligible.
13. License to practice medicine and surgery in the country in which the school of graduation is located.
14. Matriculants after Jan. 1, 1940 not accepted.
15. At the discretion of the board.
16. Internship and graduate work.
17. Internship completed in foreign countries after July 1, 1934 not acceptable.
18. Rotating internship in approved hospital in the United States or completion of senior year in class A medical school in the United States.
19. These requirements apply also to graduates of Canadian schools.
20. Graduates from foreign medical colleges accepted if they present also a diploma from an approved medical school in the United States.
21. Provided standard was the same as California on the same date.
22. Degree from an American medical college acceptable to the Medical Council of Delaware required.
23. Diplomates of the National Board of Medical Examiners accepted. Citizenship required.
24. Very limited number contracting to practice in rural districts may be accepted.
25. Effective July 1, 1943.
26. Homeopathic board requires one year internship in homeopathic hospital in the United States.

Marital Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
	California	Colorado	Connecticut	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Maine	Maryland	Massachusetts	Michigan	Mississippi	Missouri	Nebraska	New Jersey	New Mexico	New York	Ohio	Pennsylvania	South Dakota	Texas	Virginia	Washington	Hawaii	
	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
1	Universit� Libre de Bruxelles.....										1	0															
2	Universit� de Li�ge											1	0						0	1							
3	Universiteit Gent																										
	CHINA																										
4	Hackett Medical College for Women.....	0	1																								
5	Pennsylvania Medical School, Shanghai.....	1	0																								
	CZECHOSLOVAKIA																										
6	Deutsche Universit�t, Prag.....	3	1						1	0		1	0	2			1	0		9	9						
7	Masarykova Univerzita, Brno.....	1	0	1	0						1	0															
8	Univerzita Karlova, Praha.....	0	1								1	0	1						6	9							
9	Univerzita Komensk�ho, Bratislava.....												1					1	1								
	DENMARK																										
10	K�benhavn Universitet																		1	0							
	EL SALVADOR																										
11	Universidad de El Salvador.....	1	1																								
	ENGLAND																										
12	Kings College																										
13	Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England.....	1	0								0	1							1	0			0	1			
	ESTONIA																										
14	Universit� de Tartu.....											0	1						1	1							
	FRANCE																										
15	Universit� d'Aix-Marseille											1	0						1	0							
16	Universit� de Bordeaux.....																										
17	Universit� de Lyon.....																		1	2							
18	Universit� de Montpellier.....																		2	0							
19	Universit� de Nancy.....																		2	0							
20	Universit� de Paris.....	0	1								1	0							1	2							
21	Universit� de Toulouse.....											4	2						17	27							
	GERMANY																		2	1							
22	Albert-Ludwigs Universit�t, Freiburg.....	0	1								1	0							3	7							
23	Albertus-Universit�t, K�nigsberg.....											0	1						2	2							
24	Christian-Albrechts-Universit�t, Kiel.....																		0	1							
25	Eberhard-Karls-Universit�t, T�bingen.....										0	1							2	1							
26	Ernst-Moritz-Arndt Universit�t, Greifswald.....																		1	1							
27	Friedrich-Alexanders-Universit�t, Erlangen.....																		1	2							
28	Friedrich-Wilhelms-Universit�t, Berlin.....	0	1						1	0	0	1	0					28	42								
29	Georg-August-Universit�t, G�ttingen.....																		2	2							
30	Hamburgische Universit�t									1	0	0	1						0	3							
31	Hessische Ludwigs-Universit�t, Gießen.....										1	1							1	1							
32	Johann Wolfgang Goethe-Universit�t, Frankfurt-am-Main.....																										
33	Julius-Maximilians-Universit�t, W�rzburg.....	1	1							1	1								4			1	0				
34	Kaiser-Wilhelms-Universit�t, Strassburg																		7	4							
35	Karl-Franzens-Universit�t, Graz.....	1	0																3	2							
36	Leopold-Franzens-Universit�t, Innsbruck.....																		6	2							
37	Ludwig-Maximilians-Universit�t, M�nchen.....										2	0	1	0				11	17		0	2					
38	Medizinische Akademie D�sseldorf.....																										
39	Philippus-Universit�t, Marburg.....																		1	0							
40	Rheinische-Friedrich-Wilhelms-Universit�t, Bonn.....											0	1														
41	Schlesische-Friedrich-Wilhelms-Universit�t, Breslau.....																		6	5							
42	Th�ringische Landesuniversit�t, Jena.....	1	0									0	1						2	2							
43	Universit�t Heidelberg.....																		5	5							
44	Universit�t K�ln.....																		2	1							
45	Universit�t Leipzig.....																		3	4							
46	Universit�t Rostock.....										1	0							1	1							
47	Universit�t Wien.....	5	0							2	0							83	83	0	1	3	0				
48	Vereinigten Friedrichs-Universit�t, Halle-Wittenberg.....																										
	GREECE																		3	2							
49	National University of Athens.....											0	1	0					0	1							
50	Universidad Nacional de Guatemala.....	1	0																								
	GUATEMALA																										

HONDURAS

51 Universidad Central de la República de Honduras	0	1	0	1	100.0	1	51
52 Magyar Királyi Erzsébet Tudományegyetem, Pécs	1	0	0	0	0	1	52
53 Magyar Királyi Ferencz József Tudományegyetem, Szeged	2	1	0	0	0	1	53
54 Magyar Királyi Péter Pál Pázmány Péter Tudományegyetem, Budapest	0	1	0	0	0	1	54
55 Royal Iraq Medical College, Bagdad	1	0	0	0	0	1	55
56 National University of Ireland	1	1	0	0	0	1	56
57 Queen's University	1	1	0	0	0	1	57
58 University of Dublin	0	2	0	0	0	1	58
ITALY							
59 Regia Università degli Studi "Benito Mussolini" di Bari	1	1	0	0	0	1	59
60 Regia Università di Bologna	1	1	0	0	0	1	60
61 Regia Università di Firenze	1	1	0	0	0	1	61
62 Regia Università di Genova	0	1	0	0	0	1	62
63 Regia Università di Messina	2	0	0	0	0	1	63
64 Regia Università di Milano	3	2	0	0	0	1	64
65 Regia Università di Modena	2	2	0	0	0	1	65
66 Regia Università di Napoli	3	2	0	0	0	1	66
67 Regia Università di Padova	1	1	0	0	0	1	67
68 Regia Università di Palermo	1	1	0	0	0	1	68
69 Regia Università di Pavia	1	1	0	0	0	1	69
70 Regia Università di Perugia	0	1	0	0	0	1	70
71 Regia Università di Pisa	0	1	0	0	0	1	71
72 Regia Università di Roma	1	0	0	0	0	1	72
73 Regia Università di Siena	0	2	0	0	0	1	73
74 Regia Università di Torino	1	1	0	0	0	1	74
75 American University of Beirut	0	1	0	0	0	1	75
LEBANON							
76 American University of Beirut	0	1	0	0	0	1	76
LITHUANIA							
77 Lietuvos Universitetas	1	0	0	0	0	1	77
NETHERLANDS							
78 Rijks-Universiteit te Groningen	1	0	0	0	0	1	78
NORWAY							
79 Kongelige Frederiks Universitet, Oslo	1	0	0	0	0	1	79
POLAND							
80 Uniwersytet Jagielloński, Cracow	1	0	0	0	0	1	80
81 Uniwersytet Jana Kazimierza, Lwów	1	0	0	0	0	1	81
82 Uniwersytet Józefa Piłsudskiego, Warszawa	1	0	0	0	0	1	82
83 Uniwersytet Poznański, Poznań	0	1	0	0	0	1	83
84 Uniwersytet Stefana Batorego, Wilno	1	0	0	0	0	1	84
85 Universitatatea din Bucuresti	1	0	0	0	0	1	85
ROMANIA							
86 Facultate de Medicina a Universitatii de Medicina si Farmacie din Bucuresti	1	0	0	0	0	1	86
SCOTLAND							
87 University of Edinburgh	1	0	0	0	0	1	87
SWITZERLAND							
88 Universität Basel	1	1	0	0	0	1	88
89 Universität Bern	0	1	0	0	0	1	89
90 Universität Zürich	1	0	0	0	0	1	90
91 Université de Genève	1	0	0	0	0	1	91
92 Université de Lausanne	1	0	0	0	0	1	92
TURKEY							
93 University of Istanbul	1	0	0	0	0	1	93
UNION OF SOVIET REPUBLICS							
94 First Moscow Medical Institute	1	0	0	0	0	1	94
95 Kazan Medical Institute	1	0	0	0	0	1	95
96 Kharkov Medical Institute	1	0	0	0	0	1	96
97 Second Moscow Medical Institute	1	0	0	0	0	1	97
98 State Medical Institute of Vinnitsa	1	0	0	0	0	1	98
99 Voronezh Medical Institute	1	0	0	0	0	1	99
YUGOSLAVIA							
100 Univerziteti Zagreb	1	2	0	0	0	1	100

101 Totals—Examined—Passed	20	1	17	1	31	1	3	1	5	7	32	54	1	2	5	1	20	1	762	5	15	3	1	9	3	1	1,031
102 Totals—Examined—Failed	19	1	12	1	27	1	3	2	5	4	21	19	0	2	4	1	11	1	361	2	9	3	0	8	2	0	518
103 Percentage Failed	10	0	5	0	24	0	0	0	0	3	11	35	1	0	1	0	9	0	401	3	6	0	1	1	1	1	50
104 Percentage Failed	31.5	0.0	29.4	0.0	47.1	0.0	0.0	0.0	0.0	12.9	31.4	64.8	100.0	0.0	20.0	0.0	15.0	0.0	32.6	60.0	10.0	0.0	100.0	11.1	33.3	100.0	50.0
105 Marshal Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27

recognition of such individuals is by rule of the board, in others the provision is by statute. Ten states require a certificate from the state board of examiners in the basic sciences. In eighteen states, Alaska, Hawaii and Puerto Rico an internship in a hospital in the United States is a prerequisite. In addition one board may require a basic science examination and an internship in

TABLE 27.—Physicians Examined on the Basis of Credentials Obtained in Countries Other Than the United States and Canada, 1930-1943

Year	Number Examined	Passed	Percentage Failed
1930.....	167	92	44.9
1931.....	153	91	42.4
1932.....	182	96	47.3
1933.....	200	129	35.5
1934.....	255	170	40.2
1935.....	437	303	30.7
1936.....	583	352	35.0
1937.....	920	637	30.8
1938.....	1,164	716	38.5
1939.....	1,691	839	50.4
1940.....	2,088	948	54.7
1941.....	1,717	698	59.2
1942.....	1,630	890	45.4
1943.....	1,031	518	49.8
Totals.....	12,258	6,509	46.9

this country at the discretion of the board. In five states there is a requirement of a senior year's work in an approved medical school in the United States. Additional qualifications of individual states are given in footnotes.

Table 26 are figures relating to physicians with foreign credentials who were examined for medical licensure in the United States and Hawaii. The figures represent both American and foreign born physicians educated abroad. Ninety-eight faculties of medicine and two licensing corporations of twenty-one European countries and six other countries are represented. There were 1,031 examined by twenty-five states and Hawaii, of whom 518 passed and 513, 49.8 per cent, failed. Graduates of the University of Vienna represented the largest group, 214, who were examined in fourteen states with a percentage of 43.9 failures. Six states examined 78 graduates of the University of Berlin, 60.3 per cent of whom failed. The greatest number of foreign graduates examined by any one state was 762 in New York, of whom 361 passed and 401, 52.6 per cent, failed. No other state tested more than 54 of these physicians. Fewer than 5 were examined by twelve states and Hawaii. The percentage of failures in fifty-nine schools was 50 or higher.

Totals for the fourteen years 1930-1943 are presented in table 27. In this period 12,258 were examined, of whom 6,509 passed and 46.9 per cent failed. In 1943 there were 599 fewer examined than in the previous year, yet the percentage of failures was higher. In 1940 the greatest number, 2,088, were examined. In that year 948 secured licenses. The highest percentage of failures occurred in 1941, when 59.2 per cent failed. At no time in this fourteen year period did fewer than 30.7 per cent fail.

For a period of time there were large annual increases in foreign graduates examined, so that in 1940 there were over three times as many tested as in 1936. Since 1940 there have been annual decreases. The number last year was about half that of 1940, although it was still almost double the 1936 figure.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Seventeen states and the District of Columbia have adopted by legislative action basic science requirements underlying the practice of the healing art. A basic science law ignores all medical dogmas and cults. It establishes an impartial, nonsectarian board of examiners in the basic sciences—anatomy, physiology, pathology, chemistry and bacteriology—and requires that each person who desires to treat human beings appear before that board and demonstrate his knowledge. The basic science boards are distinct from the licensing boards. A certificate of proficiency in the basic sciences does not authorize the possessor to practice the healing art; it enables him only to apply for a license so to practice, whether the license is to be issued after written examination or on the basis of endorsement of credentials or reciprocity. Some states provide for reciprocal agreements, although in most instances the certificate is awarded only after examination.

Connecticut and Wisconsin were the first states to adopt such legislation. Laws were passed in these states in 1925. In 1943 Tennessee was added to the group. Boards were operative during 1943 in Arizona, Arkansas, Colorado, Connecticut, the District of Columbia, Florida, Iowa, Michigan, Minnesota, Nebraska, New Mexico, Oklahoma, Oregon, Rhode Island, South Dakota, Tennessee, Washington and Wisconsin. These eighteen states, together with the year of enactment of the law, are recorded in table 28.

In addition to the basic science subjects named, candidates are examined in some states also in diagnosis, hygiene and public health. These subjects are specified by statute and may not be changed by the board. Shown in table 29 are the subjects in which examinations are conducted by the respective states and the District of Columbia. All eighteen boards examine in anatomy, pathology and physiology, sixteen in chemistry, fourteen in bacteriology, eight in hygiene, two in diagnosis and one in public health.

The results of examinations held in these states or certificates issued on the basis of endorsement during the calendar year 1943 are presented in tables 30 and 31, as reported by the respective boards. Applying for a basic science certificate, the candidate is not required to mention whether he intends to practice medicine, osteopathy or chiropractic. However, by checking the biographic and medical student records of the American Medical

TABLE 28.—States Having Basic Science Laws and Year of Enactment

Arizona.....	1936	Nebraska.....	1927
Arkansas.....	1929	New Mexico.....	1941
Colorado.....	1937	Oklahoma.....	1937
Connecticut.....	1925	Oregon.....	1933
District of Columbia.....	1929	Rhode Island.....	1940
Florida.....	1939	South Dakota.....	1939
Iowa.....	1935	Tennessee.....	1943
Michigan.....	1937	Washington.....	1927
Minnesota.....	1927	Wisconsin.....	1925

Association and various directories, it is possible to determine the profession of the majority of candidates. Thus it has been possible to tabulate the figures in four groups, namely physicians and medical students, osteopaths, chiropractors and unclassified applicants. The latter category includes those for whom it was not possible to determine the profession represented. Dentists, osteopaths, chiropractors and naturopaths are probably included in this group.

A total of 2,741 candidates was examined during 1943 (table 30). Of this number 2,330 were physicians and medical students, 165 were osteopaths, 21 were chiropractors and 203 were placed in the unclassified group. Of all applicants 15.8 per cent failed. Of the physicians and medical students examined 10 per cent failed, osteopaths 49.6 per cent, chiropractors 57.1 per cent and unclassified 41.4 per cent. Among those who passed there were 2,098 physicians and medical students, 83 osteopaths, 9 chiropractors and 119 unclassified. The basic science board of Tennessee examined the greatest number of applicants, 513, representing 509 physicians and medical students and 4 others. Of those examined 6.2 per cent failed. Iowa, with the second greatest number of examinees, 325, had 33.5 per cent failures. Represented at examinations in this state were 156 physicians or medical students, 85 osteopaths and 84 others. The District of Columbia reported no failures, examining 10 physicians.

Osteopaths were tested in Arkansas, Colorado, Connecticut, Florida, Iowa, Michigan, Minnesota, Nebraska, New Mexico, Oregon, Rhode Island, South Dakota, Washington and Wisconsin. Chiropractors

TABLE 29.—Subjects Included in Basic Science Examinations

	Examinations Required in							
	Anat-omy	Bacteri-ology	Chem-istry	Diag-nosis	Hy-giene	Pathol-ogy	Physi-ology	Public Health
Arizona.....	+	+	+	..	+	+	+	..
Arkansas.....	+	+	+	..	+	+	+	..
Colorado.....	+	+	+	..	+	+	+	..
Connecticut....	+	+	+	+	+	..
Dist. Columbia	+	+	+	+	+	..
Florida.....	+	+	+	+	+	..
Iowa.....	+	+	+	..	+	+	+	..
Michigan.....	+	+	+	..	+	+	+	+
Minnesota.....	+	+	+	..	+	+	+	..
Nebraska.....	+	+	+	..	+	+	+	..
New Mexico....	+	+	+	+	+	..
Oklahoma.....	+	+	+	+	+	..
Oregon.....	+	..	+	..	+	+	+	..
Rhode Island..	+	+	+	+	+	..
South Dakota..	+	+	+	+	+	..
Tennessee.....	+	+	+	+	+	..
Washington....	+	..	+	..	+	+	+	..
Wisconsin.....	+	..	+	+	+	..

appeared for examination in six states—Connecticut, Florida, New Mexico, Rhode Island, Washington and Wisconsin.

It is the policy of the Arizona board of examiners in the basic sciences to omit the names of applicants who fail examinations, and the law does not require the board to record the professional school of graduation of the examinees. Failures for this state, therefore, are recorded only in the total column.

Eleven states issued 382 certificates by reciprocity, endorsement or waiver, and the boards of all states granted 2,309 certificates after examination. Altogether 2,691 certificates of proficiency were issued. The number of successful applicants by both of these methods are recorded in table 31. Among the successful candidates were 2,394 physicians, 137 osteopaths, 9 chiropractors and 151 unclassified persons. Wisconsin certified 78 without examination, the greatest number, of whom 44 were physicians, 24 osteopaths and 10 unclassified. Arizona, Florida and Washington have no reciprocal relations. None were certified without examination in Connecticut, New Mexico, Oklahoma and Rhode Island. No state certified a chiropractor without an examination. Nine states certified osteopaths without examinations.

Altogether, 2,691 candidates received basic science certificates in seventeen states and the District of Columbia in 1943, ranging from 7 in South Dakota to 533 in Tennessee.

TABLE 30.—Applicants Examined, 1943

	Physicians and Medical Students		Osteopaths		Chiropractors		Unclassified		Total Examined	Passed	Failed	Percentage Failed
	P	F	P	F	P	F	P	F				
Arizona.....	30	0	0	0	0	0	2	0	54	32	22	40.0
Arkansas.....	72	3	1	0	0	0	0	0	76	73	3	3.9
Colorado.....	75	3	2	1	0	0	4	8	93	81	12	12.9
Connecticut....	98	3	5	1	1	1	0	0	109	104	5	4.6
District of Columbia	10	0	0	0	0	0	0	0	10	10	0	0.0
Florida.....	151	38	4	1	3	5	5	0	207	163	44	21.3
Iowa.....	131	25	44	41	0	0	41	43	325	216	109	33.5
Michigan.....	213	47	9	17	0	0	7	8	301	229	72	23.9
Minnesota.....	238	20	5	7	0	0	5	5	280	248	32	11.4
Nebraska.....	113	24	0	1	0	0	5	0	143	118	25	17.5
New Mexico....	15	1	0	0	0	0	0	0	18	17	1	5.6
Oklahoma.....	129	3	0	0	0	0	4	0	136	133	3	2.2
Oregon.....	78	14	1	3	0	0	3	5	104	82	22	21.2
Rhode Island..	29	1	1	0	0	0	18	3	55	48	7	12.7
South Dakota....	3	1	1	0	0	0	0	1	6	4	2	33.3
Tennessee.....	477	32	0	0	0	0	4	0	513	481	32	6.2
Washington....	83	15	9	9	0	3	0	0	110	92	18	16.4
Wisconsin.....	153	2	0	1	4	0	21	11	292	178	114	39.0
Totals—Examined...	2,330		165		21		203		2,741			
Totals—Passed.....	2,098		83		9		119			2,309		
Totals—Failed.....	232		82		12		84				432	
Percentage Failed...	10.0		49.6		57.1		41.4				15.8	

* School of practice undeterminable, since names of failures not supplied.

In table 32 is included the number of candidates examined and certified by basic science boards for each year since and including 1927. In 1928, when five boards were functioning, there were 646 physicians

TABLE 31.—Certificates Issued by Examination, Reciprocity and Endorsement, 1943

	Examination				Reciprocity, Endorsement or Waiver				Totals	Registered
	Physicians and Medical Students	Osteopaths	Chiropractors	Unclassified	Physicians and Medical Students	Osteopaths	Chiropractors	Unclassified		
Arizona.....	30	0	0	2	32	0	0	0	0	32
Arkansas.....	72	1	0	0	73	3	1	0	2	6
Colorado.....	75	2	0	4	81	21	13	0	4	38
Connecticut....	98	5	1	0	104	0	0	0	0	0
Dist. Columbia	10	0	0	0	10	0	0	0	0	0
Florida.....	151	4	3	5	163	0	0	0	0	0
Iowa.....	131	44	0	41	216	10	3	0	3	25
Michigan.....	213	9	0	7	229	11	0	0	0	11
Minnesota.....	238	5	0	5	248	67	1	0	2	70
Nebraska.....	113	0	0	5	118	7	1	0	1	9
New Mexico....	15	1	1	0	17	0	0	0	0	0
Oklahoma.....	129	0	0	4	133	0	0	0	0	0
Oregon.....	78	1	0	3	82	9	6	0	8	23
Rhode Island..	29	1	0	18	48	0	0	0	0	0
South Dakota....	3	1	0	0	4	2	1	0	0	3
Tennessee.....	477	0	0	4	481	46	4	0	2	52
Washington....	83	9	0	0	92	0	0	0	0	0
Wisconsin.....	153	0	4	21	178	44	24	0	10	78
Totals.....	2,098	83	9	119	2,309	296	54	0	32	382

examined, of whom 9.3 per cent failed, and 59 other practitioners, of whom 47.5 per cent failed. In 1943, by comparison, 2,330 physicians were examined, of whom 10 per cent failed, and 389 other practitioners with 45.8 per cent failures. No definite trends can be detected through the years in the percentage of failures

in either the "Physician and Medical Students" group or the "Other Practitioner" category.

In this seventeen year period 17,637 physicians and medical students were examined, of whom 15,535 were successful in their examinations, while in the same period 2,672 other practitioners took the test, and 1,326 were successful. Of the physicians examined during this period 11.9 per cent failed to pass, while 50.4 per cent of the other practitioners failed to pass. In this seventeen year period 3,372 physicians and 657 others have been certified without complete examination.

Altogether in the period shown 20,890 certificates have been granted by basic science boards, of whom 18,907 were physicians and medical students; 1,983 were other practitioners.

Basic science legislation has been enacted in an attempt to provide a means of insuring that all applicants seeking licensure to care for sick and injured persons shall first possess a reasonable knowledge of the sciences fundamental to the healing art. The figures shown clearly indicate that in states that have enacted basic science laws a substantial proportion of "other

NATIONAL BOARD OF MEDICAL EXAMINERS

The licensing authorities of forty-five states, the District of Columbia and the territories and possessions of Alaska, Hawaii and Puerto Rico and the Canal Zone accept the Certificate of the National Board of

TABLE 33.—States Endorsing Certificates of the National Board of Medical Examiners

Alabama	Illinois	Montana	Puerto Rico
Alaska	Indiana	Nebraska	Rhode Island
Arizona	Iowa	Nevada	South Carolina
Arkansas	Kansas	New Hampshire	South Dakota
California	Kentucky	New Jersey	Tennessee
Canal Zone	Louisiana	New Mexico	Utah
Colorado	Maine	New York	Vermont
Connecticut	Maryland	North Carolina	Virginia
Delaware	Massachusetts	North Dakota	Washington
Dist. Columbia	Michigan	Ohio	West Virginia
Georgia	Minnesota	Oklahoma	Wyoming
Hawaii	Mississippi	Oregon	
Idaho	Missouri	Pennsylvania	

TABLE 32.—Total Candidates, 1927-1943

	Number of Boards	Physicians and Medical Students						Other Practitioners					
		Examined	Passed	Failed	Percentage Failed	Endorsement	Total Certified	Examined	Passed	Failed	Percentage Failed	Endorsement	Total Certified
1927	5	305	270	26	8.5	26	305	22	15	7	31.8	1	16
1928	5	646	586	60	9.3	19	605	53	31	22	47.5	0	31
1929	7	663	610	53	8.7	75	635	66	31	35	53.0	0	31
1930	7	685	606	79	11.5	118	724	78	30	48	61.5	4	34
1931	7	680	586	94	13.8	141	727	107	48	59	55.1	0	48
1932	7	657	590	67	10.2	106	696	78	44	34	43.6	12	56
	8	601	527	74	12.3	121	648	60	30	30	50.0	10	40
	9	815	725	90	11.0	127	852	51	26	25	49.0	11	37
35	10	882	761	121	13.7	110	871	74	33	41	55.4	4	37
	10	1,032	801	141	13.7	230	1,121	66	26	40	60.6	13	39
37	12	1,231	1,061	170	13.8	192	1,253	113	41	72	63.7	10	51
1938	12	1,168	1,026	142	12.2	207	1,293	158	70	88	55.7	26	96
1939	14	1,141	1,013	128	11.2	727	1,740	218	97	121	55.5	294	391
1940	16	1,303	1,140	163	12.5	324	1,464	280	153	127	45.0	22	175
1941	17	1,768	1,560	208	11.8	280	1,840	356	191	165	46.3	73	264
1942	17	1,725	1,476	249	14.4	213	1,689	497	249	248	49.9	91	340
1943	18	2,330	2,028	232	10.0	296	2,394	389	211	178	45.8	86	297
Totals		17,637	15,535	2,102	11.9	3,372	18,907	2,672	1,326	1,346	50.4	657	2,083

practitioners" are so incompetent that nonmedical basic science boards refuse to permit them to appear for examination before the professional boards of the state.

A federation of basic science boards has recently been organized which had its inception in February 1943 at the annual meeting of the Federation of State Medical Boards held in connection with the Annual Congress on Medical Education and Licensure. This organized effort on the part of the basic science boards is worthy of commendation, since it will provide for collaboration of mutual problems and coordination of ideas. It is hoped that it will develop in a manner similar to the organization of state medical boards and will have the support and cooperation of the medical profession, particularly those who are charged with the responsibility of administering state laws. The present officers of the new organization are: president, Orin E. Madison, Ph.D., Michigan board, Detroit; vice president, Charles D. Byrne, Ed.D., Oregon board, Eugene; secretary-treasurer, Charles Carter, D.Sc., Iowa board, Fairfield; executive committee, John S. Latta, Ph.D., Nebraska board, Omaha, and Rev. Nicholas H. Serron, O.P., Rhode Island board, Providence.

Medical Examiners as an adequate qualification for a medical license. Only the three states of Florida, Texas and Wisconsin do not accept such certification. One state—Louisiana—was added to the list of states recognizing the National Board credential in 1943. The licensing board of that state ruled that it will exempt diplomates from the state examination if they have been licensed in some other state with which Louisiana reciprocates. Additional examinations are required of those who hold the certificate of the National Board by some of the states recognizing the certificate. These are oral examinations in Connecticut, Illinois, Maine, Montana, Rhode Island and Wyoming, and a brief supplemental examination in Michigan. Pennsylvania requires a rotating internship. States, territories and possessions endorsing the certificate of the National Board are listed in table 33.

The examinations of the National Board in the basic sciences are accepted in lieu of the examinations in these subjects given by the basic science boards of Connecticut, Iowa, Minnesota, Nebraska and the District of Columbia.

Diplomates are accorded recognition by the Examining Board in England, the Triple Qualification Board of Scotland, the Conjoint Board in Ireland, and the

TABLE 34.—Examinations, 1916-1921

Date	Total Examined	Failed	Percentage Failed
October 1916.....	10	5	50.0
June 1917.....	12	3	25.0
October 1917.....	23	6	21.4
January 1918.....	20	2	10.0
April 1918.....	23	5	21.7
December 1918.....	16	1	6.3
June 1919.....	52	1	1.9
February 1920.....	48	12	25.0
May 1920.....	60	14	23.3
February 1921.....	16	5	31.3
June 1921.....	40	3	7.5
Total.....	325	57	17.5

licensing bodies in Lebanon, South Africa, Spain and Turkey. They are also admitted without further examination to the Mayo Foundation (Graduate School of the University of Minnesota) and are exempt from

some of the qualifications required by the United States Public Health Service.

Graduates of approved medical schools in the United States are eligible for certification. Graduates of university medical schools of Great Britain and Ireland are admitted to the examination provided these graduates have been licensed to practice in the country in which the school attended is located.

In consideration of the reduction in the length of the internship from one year to nine months, the Executive Committee of the National Board at its meeting on Oct. 25, 1943 resolved:

During the war period, the National Board of Medical Examiners will admit to its Part III examination those candidates who have completed nine months of internship training in an approved hospital, but the board will withhold its certificate until these candidates have completed three additional months of training as interns or residents in approved hospitals, or three months of active duty in the medical department of the armed forces.

TABLE 35.—Examinations in Part I in 1942 and 1922-1943

Date	Total Exam- inations	Passed	Incom- plete	Failed	Percentage Failed
January.....	263	157	82	30	16.0
March.....	642	383	382	71	15.4
August.....	955	602	247	106	15.2
November.....	500	293	251	46	13.6
Totals.....	2,636	1,441	962	233	14.9
1922.....	583	263	53	67	20.3
1923.....	507	349	77	81	18.8
1924.....	591	415	69	107	20.5
1925.....	603	400	50	153	28.2
1926.....	625	426	104	85	16.3
1927.....	702	452	159	91	16.8
1928.....	843	533	231	79	12.9
1929.....	1,026	675	231	90	11.8
1930.....	1,260	801	315	114	12.5
1931.....	1,277	755	425	97	11.4
1932.....	1,307	847	371	89	9.5
1933.....	1,234	782	316	136	14.8
1934.....	1,241	809	317	85	9.5
1935.....	1,264	785	410	69	8.1
1936.....	1,314	853	363	123	12.5
1937.....	1,435	871	415	149	14.6
1938.....	1,654	936	503	160	15.0
1939.....	1,733	1,018	460	225	17.7
1940.....	1,653	1,009	375	209	16.4
1941.....	1,640	1,037	346	207	16.0
1942.....	1,865	1,202	471	192	13.8
1943.....	2,656	1,441	962	253	14.9
Totals.....	26,923	16,864	7,193	2,866	14.5

The National Board was founded in 1915. From October 1916 to Dec. 31, 1921 eleven examinations were held and 268 candidates were certified. The results of each examination during this period are given in table 34. These data, together with subsequent tabulations with the addition of current figures, have been presented annually in THE JOURNAL for twenty-six consecutive years. These statistics are based on official reports received periodically. The awarding of certificates to candidates forms a part of their biographic records maintained by the American Medical Association.

Since 1922 the examination has been divided into three parts, which must be taken in the following sequence: Part I, a written examination in each of six fundamental sciences; Part II, a written examination in five major clinical subjects; Part III, an oral clinical and practical examination in six major

clinical subjects and their component subjects or subdivisions. During 1943 four examinations were given in Parts I and II in various approved medical schools. Examinations in Part III are given under the direction

TABLE 36.—Examinations in Part II in 1942 and 1922-1943

Date	Total Exam- inations	Passed	Incom- plete	Failed	Percentage Failed
January.....	306	301	0	5	1.6
March.....	575	551	0	24	4.2
August.....	160	155	0	5	3.1
November.....	818	796	0	22	2.7
Totals.....	1,859	1,803	0	56	3.0
1922.....	109	90	0	19	17.4
1923.....	192	170	2	20	10.5
1924.....	267	227	0	40	15.0
1925.....	342	309	0	33	9.6
1926.....	381	334	1	46	12.1
1927.....	361	314	1	46	12.5
1928.....	410	371	1	38	9.3
1929.....	465	399	10	47	10.5
1930.....	620	543	7	70	11.4
1931.....	719	630	2	87	12.1
1932.....	732	674	0	58	7.9
1933.....	714	651	0	63	8.8
1934.....	633	583	0	50	7.9
1935.....	639	620	0	60	10.0
1936.....	708	710	2	50	6.5
1937.....	855	803	1	51	6.0
1938.....	861	815	0	46	5.3
1939.....	933	884	0	54	5.8
1940.....	1,028	963	9	56	5.5
1941.....	1,001	954	1	46	4.6
1942.....	1,072	1,031	0	41	3.8
1943.....	1,859	1,803	0	56	3.0
Totals.....	15,016	13,884	46	1,086	7.3

of local subsidiary boards. One additional subsidiary board was established in 1943. There are at present twenty-four such centers.

A candidate is eligible for Part I who has completed successfully the first two years in an approved medical

TABLE 37.—Examinations in Part III, 1922-1943

	Total Examinations	Passed	Failed	Percentage Failed
1922.....	22	22	0	0.0
1923.....	82	81	1	1.2
1924.....	126	120	6	4.8
1925.....	219	206	13	5.9
1926.....	255	243	12	4.7
1927.....	293	272	21	7.2
1928.....	322	306	16	5.0
1929.....	352	337	15	4.3
1930.....	420	401	19	4.5
1931.....	437	419	18	4.1
1932.....	550	522	28	5.1
1933.....	551	526	25	4.5
1934.....	567	548	19	3.4
1935.....	593	578	20	3.3
1936.....	576	547	29	5.0
1937.....	663	630	33	5.7
1938.....	706	652	24	3.4
1939.....	770	729	41	5.3
1940.....	791	770	21	2.7
1941.....	910	885	25	2.7
1942.....	1,033	1,010	13	1.3
1943.....	1,220	1,213	17	1.4
Totals.....	11,498	11,077	421	3.7

school. Candidates are required to take all six subjects of this part at a regular examination period unless entitled to take an incomplete examination. An incomplete examination is allowed candidates taking Part I

at the end of their second medical year in schools whose third year curriculums include courses in one or two subjects of this part. Examination in these subjects may be given after the candidate has completed them in his medical school.

A candidate is eligible for Part II who has completed his four year medical course and has already taken Part I.

Four examinations were scheduled in Parts I and II in 1943 to coincide with the graduation dates of medical schools under the accelerated curriculum. The figures in tables 35, 36 and 37 cover the details of each examination given during a calendar year and include some who fail and are reexamined during the same year and those who pass Parts I and II in the same year. They therefore represent examinations conducted and not individuals examined.

In 1943, 2,656 examinations were given in Part I; 1,441 were passed and 253, 14.9 per cent were failed.

TABLE 38.—Parts I, II and III, Excluding Duplications, 1922-1943

	Total Examined	Passed	Incom- plete	Failed	Percentage Failed
1922.....	525	381	38	86	18.4
1923.....	775	591	79	102	11.7
1924.....	978	756	69	153	16.8
1925.....	1,167	915	50	202	18.1
1926.....	1,161	930	105	126	11.9
1927.....	1,248	917	142	159	14.4
1928.....	1,430	1,101	211	118	9.7
1929.....	1,723	1,280	319	124	8.8
1930.....	2,044	1,547	322	175	10.2
1931.....	2,218	1,632	410	176	9.7
1932.....	2,342	1,850	355	137	6.9
1933.....	2,277	1,866	280	191	9.6
1934.....	2,261	1,801	330	130	6.7
1935.....	2,368	1,831	408	129	6.6
1936.....	2,517	1,989	353	175	8.1
1937.....	2,735	2,151	397	187	8.0
1938.....	2,692	2,308	493	191	7.6
1939.....	3,221	2,476	443	302	10.9
1940.....	3,188	2,597	363	228	8.1
1941.....	3,318	2,749	332	237	7.9
1942.....	3,607	3,014	391	202	6.3
1943.....	4,513	3,670	666	237	6.1
Totals.....	48,608	38,325	6,516	3,767	8.9

During the year also 962 incomplete examinations were given. In Part II, 1,859 examinations were given. Fifty-six of this number, 3.0 per cent, were failures. Incomplete examinations are only rarely given in this part. There were none last year.

Since 1922 there have been 26,923 examinations given in Part I and 15,016 in Part II. During this twenty-two year period 16,864 were successful tests in Part I and 13,884 in Part II. The percentage of failures for these two parts was 14.5 in Part I and 7.3 in Part II. Owing in large part to the accelerated curriculums of medical schools the number of examinations given in these two parts in 1943 greatly increased.

The final examination in Part III is given when the candidate has received his M.D. degree and has satisfactorily completed an internship. In 1943, 1,230 examinations were given, 17 of which (1.4 per cent) were unsuccessful tests. The results of examinations for this part during twenty-two years are given in table 37 and indicate that 11,498 were tested, of whom 11,077 were granted certificates. The percentage of

failures was 3.7. Since 1916, 11,345 certificates have been awarded.

The tabulations thus far presented represent examinations given. The number of individuals tested dur-

TABLE 39.—Diplomates from Individual Medical Schools, 1943

	Certificates Awarded		Certificates Awarded
Univ. of Arkansas.....	1	Albany Med. Coll.....	35
Coll. of Med. Evangelists....	52	Columbia Univ.....	66
Stanford Univ.....	5	Cornell Univ.....	26
Univ. of California.....	1	Long Island Coll. of Med....	20
Univ. of So. California.....	3	New York Med. Coll.....	79
Univ. of Colorado.....	3	New York Univ.....	39
Yale Univ.....	47	Syracuse Univ.....	7
George Washington Univ....	48	Univ. of Buffalo.....	62
Georgetown Univ.....	57	Univ. of Rochester.....	13
Howard Univ.....	3	Duke Univ.....	55
Loyola Univ.....	1	Univ. of Cincinnati.....	1
Northwestern Univ.....	21	Univ. of Oregon.....	9
Univ. of Chicago.....	5	Hahnemann Med. Coll.....	2
Univ. of Illinois.....	19	Jefferson Med. Coll.....	7
Indiana Univ.....	2	Temple Univ.....	12
State Univ. of Iowa.....	25	Univ. of Pennsylvania.....	17
Univ. of Louisville.....	2	Woman's Med. Coll.....	7
Louisiana State Univ.....	1	Meharry Med. Coll.....	1
Tulane Univ.....	7	Univ. of Tennessee.....	1
Johns Hopkins Univ.....	9	Vanderbilt Univ.....	4
Univ. of Maryland.....	5	Univ. of Vermont.....	14
Boston Univ.....	64	Med. Coll. of Virginia.....	1
Harvard Med. School.....	133	Univ. of Virginia.....	1
Tufts Coll. Med. School.....	109	Marquette Univ.....	7
Univ. of Michigan.....	1	Laval Univ.....	1
Univ. of Minnesota.....	7	McGill Univ.....	4
St. Louis Univ.....	10	Queen's Univ.....	1
Washington Univ.....	7	Univ. of Toronto.....	2
Creighton Univ.....	4	Extinct medical school.....	7
Univ. of Nebraska.....	1	Foreign.....	29
Total.....			1,213

ing any one year is recorded for the twenty-two year period in table 38. The classification as passed or failed in cases in which more than one examination has been taken in a given year was based on the results of the

TABLE 40.—Licenses Granted on the Basis of National Board Certificates, 1943

Alabama.....	4	New Hampshire.....	3
Arizona.....	3	New Jersey.....	25
California.....	51	New Mexico.....	2
Colorado.....	10	New York.....	215
Connecticut.....	42	North Carolina.....	9
District of Columbia.....	33	Ohio.....	13
Georgia.....	1	Oklahoma.....	4
Idaho.....	2	Oregon.....	5
Illinois.....	17	Pennsylvania.....	20
Indiana.....	2	Rhode Island.....	9
Iowa.....	4	South Carolina.....	1
Kansas.....	2	South Dakota.....	1
Kentucky.....	2	Tennessee.....	7
Maine.....	1	Utah.....	2
Maryland.....	9	Vermont.....	3
Massachusetts.....	94	Virginia.....	4
Michigan.....	7	Washington.....	6
Minnesota.....	13	West Virginia.....	1
Mississippi.....	3	Hawaii.....	2
Missouri.....	12		
Nebraska.....	2	Total.....	651
Nevada.....	2		

last examination. For example, if in 1943 a candidate passed Part I but later in 1943 failed Part II, he is computed in the tabulation as a failure. There were 4,513 individuals who were tested in at least one of the examinations of the National Board in 1943. The trend has been steadily upward, and last year the num-

ber of candidates was 906 greater than in the previous year. A total of 48,608 individuals was examined in one or more of the annual examinations in the twenty-two years shown, of whom 38,325 passed, 6,516 took incomplete examinations and 3,767, or 8.9 per cent, failed.

The 1,213 physicians certified as Diplomates last year represented graduates (table 39) from fifty-four existing and one extinct medical school in the United States, four in Canada and twenty-nine graduates of faculties of medicine abroad.

In 1943, 651 Diplomates were granted licenses to practice medicine on the basis of their National Board certificate in thirty-nine states, the District of Columbia and Hawaii. These facts can be noted in table 40. Since the National Board was formed, 8,223 physicians have been licensed to practice medicine on the basis of credentials from the board. In this same period 11,345 received the certificate of the board. It would appear that 3,122 have not used the credential as a licensing medium.

EXAMINING BOARDS IN THE MEDICAL SPECIALTIES

Examining boards leading to certification have been organized in fifteen specialties, as follows:

Anesthesiology	Pathology
Dermatology and Syphilology	Pediatrics
Internal Medicine	Plastic Surgery
Neurologic Surgery	Psychiatry and Neurology
Obstetrics and Gynecology	Radiology
Ophthalmology	Surgery
Orthopedic Surgery	Urology
Otolaryngology	

In 1934 the Council on Medical Education and Hospitals was instructed by the House of Delegates of the American Medical Association to formulate minimal essentials deemed necessary for certification as a specialist. Prior to 1934 there were five boards functioning. Other boards were later organized, and since 1940 fifteen boards have been in operation. All these boards are fully approved by the Council.

The Council's "Essentials of Approved Examining Boards in Medical Specialties" outlines the type of organization and the responsibilities of such boards as well as the minimum qualifications deemed necessary for the certification of a specialist. Such qualifications include graduation from an approved medical school, completion of an internship in a hospital approved by the Council, three additional years of special training in institutions approved by the Council and the board concerned, and a further period of two years devoted to specialty study and/or practice.

The Advisory Board for Medical Specialties was organized in 1933-1934 to coordinate graduate education and certification of medical specialists in the United States and Canada. This board reports directly to its member groups, and functions in close cooperation with the Council on Medical Education and Hospitals of the American Medical Association.

The American Board of Internal Medicine by special examination certifies specialists in allergy, cardiovascular disease, gastroenterology and tuberculosis. Similarly the American Board of Surgery certifies specialists in proctology. Regular board certification is a prerequisite for certification in the subspecialty.

The number of certificates awarded prior to March 1, 1943 and the number certified from that date to March 30, 1944, respectively, appears in table 41. On March 1, 1943 there were 21,699 physicians certified by the fifteen specialty boards, and in the following year 1,578

were certified. On March 30, 1944 a total of 23,277 certificates had been issued.

In the subspecialties 728 have been certified, namely allergy 71, cardiovascular disease 310, gastroenterology 149, proctology 70 and tuberculosis 128.

In internal medicine 3,263 have been certified and in general surgery 2,342. However, the greatest number in any one specialty certified were in otolaryngology. In this specialty 3,737 have received the board's certificate since the organization of this board in 1924. The board in ophthalmology, organized in 1917 and the oldest board in existence, has to date certified 2,336. There has been a 200 per cent increase in the past year in the number certified in neurologic surgery, which was formulated in 1940 and is the last board organized.

The 9-9-9 program curtails the training of numbers of young physicians desiring specialty certification. Under this wartime program the various boards will probably allow credit for the actual time spent by the candidate in house officer training in approved hospitals.

The majority of the boards will grant some credit for military service which will compensate in part for the interruption of the graduate training of physicians by military exigencies. The policies adopted by the specialty boards vary from the granting of an indefinite amount of credit, to be determined by an evaluation of the experience of individual applicants, to full credit for work done in the surgical division of a regularly constituted army or naval hospital. Six boards reported that, since March 1, 1943, 145 physicians have received military service credit to complete their qualifications for certification.

Prospective applicants who are in military services should obtain a copy of the "Record of Professional Assignments for Prospective Applicants for Certification."

TABLE 41.—Approved Examining Boards in Medical Specialties

Key No.	Name of Board	Year of Incorporation	Certificates Awarded	
			Total Issued to March 1, 1943	March 30, 1944
1.	American Board of Pediatrics.....	1933	2,058	2,220
2.	American Board of Psychiatry and Neurology.....	1934	1,536	1,716
3.	American Board of Orthopaedic Surgery.....	1934	819	860
4.	American Board of Dermatology and Syphilology.....	1932	644	680
5.	American Board of Radiology.....	1934	1,881	2,012
6.	American Board of Urology.....	1935	912	953
7.	American Board of Obstetrics and Gynecology.....	1930	1,656	1,764
8.	American Board of Internal Medicine....	1936	2,905	3,263
9.	American Board of Pathology.....	1936	954	1,012
10.	American Board of Ophthalmology.....	1917	2,198	2,336
11.	American Board of Otolaryngology.....	1924	3,570	3,737
12.	American Board of Surgery.....	1937	2,144	2,342
13.	American Board of Anesthesiology.....	1938	188	231
14.	American Board of Plastic Surgery.....	1937	154	169
15.	American Board of Neurological Surgery.....	1940	50	149
			21,699	23,277

Certification in the subspecialties: By the American Board of Internal Medicine: allergy 71, cardiovascular disease 310, gastroenterology 149, tuberculosis 128, total 658. By the American Board of Surgery: proctology 70. Total certified in the subspecialties, 728. These figures are included in the above tabulation.

tion by Specialty Boards" from the secretary of any board. This booklet describes procedures pertaining to military credit and will enable prospective applicants and candidates to keep an accurate account of work done in the military service and will constitute part of the credentials to be submitted to the board on application for certification.

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SATURDAY, MAY 13, 1944

MEDICAL LICENSURE

The forty-second annual compilation of data on medical licensure is presented in this State Board Number by the Council on Medical Education and Hospitals. These important statistics, covering the calendar year 1943, were furnished by medical and basic science examining boards in the United States, territories and possessions, the National Board of Medical Examiners, the various American boards in the specialties, and other agencies. The Council and THE JOURNAL greatly appreciate the cooperation of these agencies in making available this material. Besides publication in THE JOURNAL, a reprint edition is available and given wide circulation. Reprints of certain separate tables are also made and assist the Council in replying to the thousands of requests for information on licensure and related subjects.

As a result of the accelerated program in medical education a considerable increase occurred in numbers taking examinations in 1943 as compared with the preceding year. However, fewer licenses were actually issued last year than in 1942 because many graduates examined in December did not receive licenses until early in 1944. Their licenses will appear in the statistics to be published next year. In addition some physicians entered the Army before becoming licensed and fewer foreign graduates applied.

For a time there were large annual increases in foreign graduates examined, so that in 1940 there were over three times as many tested as in 1936. Since 1940 there have been annual decreases. The number last year was about half that of 1940, although it was still almost double the 1936 figure. Throughout the years failures among foreign graduates have been high. Nearly 50 per cent of foreign graduates examined failed in 1943 as compared with 1.5 per cent failures of graduates of approved schools and 38.4 per cent failures from unapproved schools.

AN EXPERIMENT IN THE EARLY DIAGNOSIS OF GASTRIC CANCER

A noteworthy experiment¹ has been made in the detection of early gastric cancer by roentgenologic examinations of persons over 50 without definite symptoms of digestive disorder. Starting with patients in the surgical follow-up clinic of the Presbyterian Hospital in New York, the plan was extended to include also persons who came to the hospital whether as patient, relative or friend. It did not prove difficult to persuade people to be examined, and there was "little evidence of arousing undue fear of cancer" and "they were usually happy and grateful to know the result."

The examination has been limited to a rapid fluoroscopy of the stomach by an experienced roentgenologist to determine only whether there was evidence or not of any abnormal condition. The experiment, now interrupted by the war, does not establish definitely the value of this mass gastric fluoroscopy, but the results obtained so far are of great interest. Of the 2,413 persons examined 3 had unsuspected gastric cancer (2 early carcinoma, 1 lymphosarcoma) and were subjected to subtotal resection with favorable prognosis—no metastasis—in the cases of carcinoma. A relatively large number of functional and organic noncancerous abnormalities were disclosed by the fluoroscopy. In 491 persons examined a second time a year or more after the first examination, cancer was not found. Excluding charges for roentgenologic equipment and for the services of the roentgenologist, the running expenses for the examination have been approximately 48 cents a person.

While it is true, as stated by St. John and his colleagues, that it cannot yet be said whether their method "is a practical one for reducing the large number of incurable gastric carcinomas that come to our hospitals," there can be no question that an important step has been taken in the right direction. "At least one thing should come of it, if nothing else, and that is an opportunity to learn more about the characteristics of early gastric carcinoma, for our experience so far has, unfortunately, been chiefly with its late manifestations." The problems of adequate provisions for the needed further study of mass fluoroscopy in the detection of early gastric cancer should receive careful consideration by life and health insurance companies, corporations with their thousands of employees, governmental and other hospitals, the Veterans Administration and other organizations that are concerned with the health of large groups of people. And should not gastric fluoroscopy with other methods be used more and more as part of periodic health examinations as well as in clinical diagnostic work generally?

1. St. John, F. B.; Swenson, P. C., and Harvey, H. D.: An Experiment in the Early Diagnosis of Gastric Carcinoma, *Ann. Surg.* 119: 225 (Feb.) 1944.

CHEMOTHERAPY IN TUBERCULOSIS

The publicity given to the use of chemotherapeutic agents in the treatment of tuberculosis has focused attention on the possibility that a medical remedy may be found with specific action directed toward the infecting organism. Among the products thus far mentioned are promin, diasone, promizole and diaminodiphenylsulfone. The available evidence in behalf of these remedies has been accumulated largely through experiments on animals, although some studies have been made, particularly of promin and diasone, on human beings. The current interest has caused the Committee on Therapy¹ of the American Trudeau Society to issue a special report² which, because of its significance, is here published in toto:

The Committee on Therapy of the American Trudeau Society (Medical Section of the National Tuberculosis Association), in session March 17 and 18, 1944, at Chicago and Waukegan, Illinois, has reviewed information so far made available to it on the effects of Promin, Diasone, Promizole, diaminodiphenylsulfone and some related drugs upon previously established experimental tuberculosis in guinea pigs. It has also reviewed the very limited amount of roentgenological and clinical data from one institution so far made available regarding patients treated with one of the drugs, viz. Diasone. On the basis of these data the following statement has been authorized:

Promin, Diasone, Promizole and certain related compounds appear to possess in varying degree the striking ability to restrain the development of experimental tuberculosis in guinea pigs. It is recognized that experimentally induced tuberculosis in guinea pigs offers many contrasts with clinical tuberculosis in human beings, even though the causative organism is the same.

It is the opinion of the Committee that the clinical and roentgenological data so far made available to the Committee on the action of Diasone in human tuberculosis is as yet inadequate both quantitatively and qualitatively to permit, even tentatively, a positive evaluation of its curative effects upon tuberculosis in humans. The Committee believes that there is, at this time, no adequate basis for the optimistic implications of the magazine articles or of the releases to the press which are now so well known to both the profession and the public. It is believed, on the contrary, that such implications are distinctly unwarranted and not in accord with the clinical evidence

which has been reviewed by the Committee. The Committee regrets exceedingly that the magazine articles mentioned previously were published in spite of efforts on the part of both the Committee and the clinician quoted to stop their publication.

Until controlled studies of adequate scope have been reported, it is recommended that none of these drugs be used for treating tuberculous patients except under conditions which will appreciably add to our knowledge of their clinical action, and in the presence of adequate facilities to protect patients effectively from their potentially serious toxic effects. Patients and physicians must also be reminded of the provisions of the federal regulations which prohibit the distribution of a drug in the experimental phase of development to other than research institutions to which the material is assigned by the manufacturer for either laboratory or clinical investigation. The Committee is informed that other clinical investigations are now in progress, and it is the expressed opinion of the Committee that such further well controlled clinical investigation is distinctly desirable.

Any use of chemotherapeutic agents, including Diasone, in the treatment of tuberculous patients must, therefore, be regarded as purely a project in clinical investigation. It must be again emphasized that such use is not without hazard and that the roentgenological and clinical evidence reviewed by the Committee gives no justification at this time for any attitude concerning the value of these drugs in patients other than one of critical interest.

While the development of an effective chemotherapeutic agent is not yet accomplished, the great strides that have been made in the field of chemotherapy in recent years would seem to offer definite hope for the not too distant future. Certainly, however, there is no reason to believe that a therapeutically effective agent is now available for general use.

Current Comment

TRANSPORTATION TO ANNUAL SESSION

In the Organization Section in this issue of THE JOURNAL appears a letter from the Office of Defense Transportation urging physicians who plan to attend the annual session to leave their families at home and urging exhibitors to transport the least amount of material possible. Already there is evidence that the housing facilities of Chicago for the week of the annual session will be well nigh overwhelmed. It is apparent that the facilities for transportation will also be pushed to their utmost and that it will be especially difficult to obtain transportation returning home. Physicians who plan to come to the annual session should, if possible, make definite reservations for their return even before leaving home.

1. The committee includes Dr. H. Corwin Hinshaw, Rochester, Minn., chairman; Dr. Kirby S. Howlett Jr., Shelton, Conn.; Dr. T. N. Rafferty, Northville, Mich.; Dr. Andre Courmand, New York; Dr. John N. Hayes, Saranac Lake, N. Y.; Dr. John C. Jones, Los Angeles, and Dr. John Steele, Milwaukee.

2. Report of the Committee on Therapy, American Trudeau Society, *Am. Rev. Tuberc.* 49:391 (April) 1944.

NATIONAL TUBERCULOSIS ASSOCIATION CELEBRATES FORTIETH ANNIVERSARY

On May 9-12 the National Tuberculosis Association celebrated its fortieth anniversary in Chicago under the presidency of Dr. Lewis J. Moorman. More progress in controlling tuberculosis has occurred in these forty years than in the previous four thousand. The first meeting, held in January 1904, was presided over by Dr. William H. Welch of Johns Hopkins. The representative committee of 38 included 37 physicians, whose names read like an honor roll of American medicine for that period. As Dr. Welch pointed out in the twenty-fifth anniversary meeting in Atlantic City, the conception was in Baltimore, the birth occurred in Philadelphia, and the organization was completed at a meeting held in Atlantic City. At that meeting Dr. William Osler presided and Dr. Henry Barton Jacobs acted as secretary. The first president was Dr. Edward L. Trudeau. The National Tuberculosis Association has played a considerable part by education and demonstration in teaching the value of rest, fresh air, adequate nutrition, proper housing and personal cleanliness in the control of this disease. It has aided in developing scientific use of the tuberculin test and in establishing the importance of routine roentgenologic examination of the chest for the detection and determination of the progress of tuberculosis. It has emphasized the importance of teaching tuberculosis in medical education. For these accomplishments the National Tuberculosis Association deserves the gratitude of our nation. The progress made is an astounding record of the battle against morbidity and mortality from tuberculosis.

PROPOSED TRANSFER OF HEALTH ACTIVITIES FROM LABOR DEPARTMENT TO U. S. PUBLIC HEALTH SERVICE

On April 25 Congressman A. L. Miller of Nebraska introduced in Congress a bill to transfer to the Federal Security Administration and the Public Health Service those functions of the Secretary of Labor and the Children's Bureau of the Department of Labor which are concerned with health, including industrial hygiene. Dr. Miller, in introducing his bill, spoke unequivocally and forthrightly regarding the necessity for this legislation. As a former state health director in Nebraska he had observed at first hand the activities of the Labor Department relating to health. Since the Children's Bureau was established on April 9, 1912 it has repeatedly expanded and extended its functions in all fields of health. The original act contemplated only investigation of child welfare and the control of such social problems as dangerous occupations, accidents and employment of children. At that time the Congress provided \$25,640 for the work of this bureau. Today the Labor Department includes the Division of Maternal and Child Health, a Division of Crippled Children and a Division of Industrial Health, all of which have been expanding their activities. Much of their work is being duplicated in the U. S. Public Health Service.

As pointed out by Congressman Miller, the definition has been adopted that a child is any one under 21 years of age. The extent to which the Labor Department enters directly into the activities of state health departments is so great that they actually audit the books of state health departments, check their moneys, pass on their health activities and in other ways control their functions, as, incidentally, does the U. S. Public Health Service also to a considerable degree. The amount of money available for matching purposes through the Children's Bureau has constantly expanded. Now that the emergency maternal and infant care program has been set up, the original \$25,000 has been expanded to millions and millions. Congressman Miller said:

It is my experience as state health director to find that these two agencies and the personnel in the health departments are jealous of each other. Each wants to expand his health activities. The confusion of plans and conflict of ideas made it difficult for state health directors to coordinate their programs to the best interests of the public. I am convinced that if all the health activities were under one head with moneys and plans spent with one objective in view, that we could eliminate much duplication and confusion in the promotion of better public health.

The House of Delegates of the American Medical Association has urged repeatedly the inclusion of all health activities of the federal government in a single agency. As physician, health officer and statesman Congressman Miller is true to his scientific training in launching this measure.

"PATENT MEDICINE" BALLYHOO ON THE RADIO

Although many leading publications of the country have made a serious effort to eliminate the worst of the "patent medicines" from their advertising pages, numerous radio stations remain notoriously backward in this respect. Hour after hour, day after day, loud speakers of radios blare forth outrageous claims for some nostrum or "patented" home remedy. The "patent" remedies advertised range from those that may be positively harmful, as is that discussed elsewhere in this issue (p. 107), to those that are merely grossly overpriced in relation to their value. Even these, however, tend to delay the use of dependable foods or services and initiate the expenditure of funds that might better be applied to securing scientific diagnosis and treatment. Recently newspapers as widely different as the *Chicago Tribune* and *PM* have almost simultaneously exposed some of the most notorious of the "patent medicines." But newspapers alone cannot solve this problem. The situation requires the housecleaning efforts of the radio industry itself and the more active interest of those governmental agencies, such as the Federal Trade Commission, Food and Drug Administration and Post Office Department, which are delegated with responsibility in this regard. The interests which exploit the sick through "patent medicine" advertising on the radio should not be allowed to tamper longer with the health and pocketbooks of the American people.

MEDICINE AND THE WAR

ARMY

AVIATION MEDICAL EXAMINERS

Graduation exercises were held on March 15 for aviation medical examiners following the course on aviation medicine. Brig. Gen. Eugen G. Reinartz, U. S. Army, commandant of the school, presented the diplomas. The list of students graduating follows:

ALABAMA

Charles E. Parker, Major, Montgomery.

CALIFORNIA

Thomas F. Barrett, Captain, Sausalito.
Albert G. Dittes, Captain, Arlington.
Nathan A. Dubin, Captain, Lincoln.
John E. Esnard, 1st Lieut., Los Angeles.
Charles C. Gratiot, 1st Lieut., Monterey.
Lewis M. Kistler, Major, Los Angeles.
Guy E. Maggio, Captain, San Diego.
Edward S. Maloney, Major, Santa Rosa.
Gordon O. Mannerstedt, Major, Oakland.
Gordon L. Richardson, Captain, North Hollywood.
James O. H. Simrall, Captain, Los Angeles.
John H. Stark, Captain, Los Angeles.
John P. Young, 1st Lieut., Le-moore.

CONNECTICUT

John J. Gaffney, Captain, Danbury.
Morris P. Pitock, Captain, Fairfield.

DISTRICT OF COLUMBIA

Austin E. Lamberts, Captain, Washington.
Walter J. Romejko, 1st Lieut., Washington.
Alfred Wilson, Major, Washington.

FLORIDA

Allen P. Gurganious, Captain, Palatka.
Philip F. Simensky, Major, Orlando.

GEORGIA

Winston E. Burdine, Captain, Marblehill.
Sidney L. Hancock, Captain, Macon.
Charles H. Paine Jr., Captain, Atlanta.
John M. Trapnell Jr., 1st Lieut., Atlanta.

ILLINOIS

John E. Helm, Captain, Benton.
Robert D. Lowrey, Captain, Chicago.
Edward W. McNamara, 1st Lieut., Chicago.
Maurice D. Pearlman, Captain, Chicago.
John E. Stoll, Major, Oak Park.
Joseph J. Tovarek, Captain, Berwyn.
Irwin C. Winter, Captain, Clarendon Hills.

INDIANA

Charles J. Auerman, Captain, Indianapolis.
Joseph H. Baltes, 1st Lieut., Fort Wayne.
Kile C. Hardesty, Captain, Fort Wayne.
Herbert L. Joseph, Captain, Indianapolis.

IOWA

Kyle T. DeYarman, Captain, Morningsun.
Leland H. Prewitt, Major, Ottumwa.

KANSAS

Corbin E. Robison, Captain, Hoisington.

Leon W. Zimmerman, Captain, Liberal.

KENTUCKY

Meyer M. Harrison, Captain, Louisville.

LOUISIANA

Jack R. Jones, Captain, New Orleans.
Harold B. Levy, Captain, Shreveport.
John W. McGhee Jr., Captain, Baton Rouge.
Joseph B. Marino, Captain, New Orleans.

MARYLAND

Clarence W. Martin, Major, Baltimore.

MASSACHUSETTS

Paul H. Harwood Jr., Captain, Boston.

MICHIGAN

William A. Exum, Captain, Detroit.
Raymond G. Finnie, Captain, Hastings.
John V. Fopeano, Major, Kalamazoo.
Kenneth E. Gloss, Major, Crystal Falls.
Kenneth H. Johnson, Captain, Lansing.
William A. LeMire, Captain, Escanaba.
Henry Schlesinger, Captain, Detroit.
Karl E. Seidel, 1st Lieut., Ionia.
Loren E. Wanless, Major, Detroit.
William F. Weeks, Captain, Ann Arbor.
Harris L. Woodburne, Captain, Bay City.

MINNESOTA

Charles U. Culmer, Major, Duluth.
Robert S. Hunt, Captain, Fairmont.
George F. McIntosh, Captain, St. Paul.
Joseph D. Messler, 1st Lieut., Rochester.

MISSISSIPPI

Jesse T. Davis, Major, Corinth.
Lloyd E. Deedens, Captain, Gulfport.

MISSOURI

Arch. J. Beatty, Captain, Warrensburg.
Robert E. Buck, Captain, St. Louis.
Joseph Edward Flynn, 1st Lieut., Clayton.
Raymond F. Holden Jr., Captain, St. Louis.
Louis F. Howe, Captain, Union.
Louis P. Kirtz, 1st Lieut., St. Louis.

NEBRASKA

John N. Round, Major, Ord.

NEW JERSEY

Sidney Alpert, Captain, Lakewood.
T. Louis Bacchiani, Captain, Nesconset.
John D. Barlow, 1st Lieut., Hightstown.
William X. Gebele Jr., Captain, Neptune.
Sylvan J. Greenfield, Major, Newark.
George V. Judson Jr., Captain, Barrington.
Kasper J. Price, Captain, Elizabeth.
Clarke Leo Smith Jr., 1st Lieut., Orange.

Leroy R. Weekes, Captain, Atlantic City.

Allen A. Welkind, Captain, Newark.

NEW YORK

Sidney S. Berkowitz, Captain, New York.
James E. Cavanagh, Major, Plattsburg.
Michael Eden, Captain, Jamaica.
Elroy L. Fulson, Captain, Buffalo.
Joseph A. Gaetane, Captain, Jamaica.
Leigh S. Greenfield, Captain, Rochester.
Armand L. Greenhall, Major, New York.
Harold Guzzo, Captain, New York.
Saul S. Hauser, Captain, Brooklyn.
Arthur D. Hengerer, 1st Lieut., Albany.
Ralph Jacobs, Captain, West Orange.
Edward F. P. Kearney, Captain, New York.
Sumner B. Kingsley, 1st Lieut., Rome.
Albert L. Larson, Major, White Plains.
Sidney Leibowitz, Lieut. Col., New York.
Frank G. Leone, Captain, Utica.
Joseph Levy, Captain, New Rochelle.
Jack G. Lustgarten, Captain, Buxton.
Leslie W. Maillard, Major, Flushing.
Frank L. Okoniewski, Captain, Auburn.
Stanley C. Pettit, Captain, Staten Island.
Hugh M. Pierce, Captain, Rochester.

Joseph Y. Roberts, Captain, Watkins Glen.
Pasquale A. Ruggieri, Captain, New York.

Herbert S. Simpson, 1st Lieut., Port Henry.
Maurice B. Thompson, Captain, Great Neck.
Harold David Warren, Captain, Richmond Hill.
George J. Wayne, Captain, Brooklyn.

NORTH CAROLINA

Kenneth L. Cloninger, Major, Conover.
Ernest W. Furgurson, Captain, Plymouth.
Donald Y. Hirst, Captain, Durham.
George J. Newman, Captain, Murphy.

William H. Thames, 1st Lieut., Greenville.

OHIO

Jack A. Adelman, Major, Columbus.
William D. Beasley, Major, Springfield.
Steven R. DeMeter, Major, Cleveland.
John W. Devanney Jr., Captain, Cincinnati.
Robert W. Kistner, 1st Lieut., Cincinnati.

The following officers are in the Brazilian Air Force:
Jose Amaral, 1st Lieut.

Walter E. Martin, Captain, Columbus Grove.

Stanley Vangrov, Captain, Dayton.
Russell F. Wiggers, 1st Lieut., Cincinnati.

Robert E. Wirtz, Captain, Canton.

OKLAHOMA

William J. Campbell, Captain, Oklahoma City.
Edwin M. Harms, Captain, Blackwell.

PENNSYLVANIA

R. Stanley Bank, Captain, Harrisburg.
James Russell Bell, Major, Canonsburg.
Joseph Bloom, Captain, Philadelphia.
Joseph G. Buchert, Captain, Philadelphia.
John W. Davis, 1st Lieut., Philadelphia.
Samuel G. Huff, Captain, Eldred.
Bernard E. Lachman, Captain, Oil City.
Myron H. Matz, 1st Lieut., Connelville.
Milton E. Muldower, Captain, Philadelphia.
Ruben R. Pottash, Captain, Philadelphia.
Harold A. Tattersall, Captain, Harrisburg.
Frederick W. Volkwein, Captain, Bridgeville.

SOUTH CAROLINA

DuBose Eggleston, Captain, Hartsville.

TENNESSEE

Charles A. Mella Jr., 1st Lieut., Nashville.
Cleo M. Miller, Major, Nashville.
John H. Saffold, Captain, Memphis.

TEXAS

Farris P. Allison, Major, Beaumont.
Jesse J. Hopkins, Captain, Baytown.
Hampton C. Robinson Jr., Captain, Missouri City.
George J. Seibold, Captain, Wichita Falls.

UTAH

Cecil L. Jorgensen, Captain, Ogden.

VERMONT

Bascom Bogle, Major, Northfield.

VIRGINIA

Harold M. Boslow, Captain, Appalachia.
Alter Laibstain, Captain, Norfolk.

WISCONSIN

Kenneth L. Haman, Captain, New London.
Thomas O. Nuzum, Major, Janesville.

MAJOR N. H. NICKERSON CITED

Major N. H. Nickerson, formerly of Greenville, Maine, has been cited for outstanding medical and liaison work in behalf of French and Arab civilians at Bizerte and Tunisia. Dr. Nickerson graduated from Bowdoin Medical School, Brunswick-Portland, Maine, in 1919 and enlisted in the U. S. Army Medical Corps in the fall of 1942. After six months' preliminary training in the United States he was sent overseas and stationed at Bizerte, Tunisia.

U. S. ARMY MOBILE UNITS SEEK BLOOD DONATIONS FROM ARMY UNITS IN ENGLAND

The United States Army Medical Corps has established mobile "bleeding teams" which will visit army units in England seeking donations to build up its blood bank reserve in preparation for invasion of western Europe. Col. Elliott C. Cutler, chief consultant in surgery in the European theater of operations, made the following comment on opening this traveling blood bank drive: "Whole blood and blood plasma are vitally important in a great military campaign if we are to save lives of wounded men. Our mobile units will enable us to reach soldiers who are happy to give blood to the bank but who have had no opportunity because facilities were unavailable." Only donors with O type blood are being accepted, since it is suitable for universal transfusion regardless of the patient's own blood type. The blood is placed in a special refrigerator, which holds 10 pints. In combat, refrigerator trucks will be employed to distribute the blood to advance hospitals.

WOMEN'S ARMY CORPS TO RECRUIT TECHNICIANS FOR MEDICAL DEPARTMENT

At the request of the Surgeon General, the Officer Procurement Service will cooperate with and assist the Women's Army Corps in the recruiting of qualified women technicians for enlistment in the Women's Army Corps for the Medical Department. All candidates will be enlisted in the grade of private and will be required to complete five weeks of basic training. On completion of the basic training, those who fulfil all requirements of their technical specialty are eligible for assignment to appropriate duties with the Medical Department. After assignment to duty, enlisted women are eligible for promotion to a noncommissioned officer grade or appropriate technician rating. Women are needed in many fields, among which are mentioned laboratory technician, dental laboratory technician, x-ray technician, lip reading technician, hearing aid technician, occupational therapist technician and pharmacist technician. Women qualified in the special skills are eligible for assignment as technical sergeants, staff sergeants or suitable technician's grades.

LIEUT. COL. JOSEPH M. BARSKY AWARDED LEGION OF MERIT

Lieut. Col. Joseph M. Barsky, formerly of Wilmington, Del., has been awarded the Legion of Merit "for exceptionally meritorious conduct in the performance of outstanding services as force sanitary inspector at an island base in the Pacific from Feb. 15, 1942 to Feb. 18, 1943. He planned and organized the sanitary measures for the protection of the base. He organized a system of dispensaries to cover the great area occupied by the many widely separated units. He supervised sanitary measures for the command and coordinated them with those of the civilian population. His success and accomplishments are measured by the low sick rate of the command. His leadership and force in sanitary control have raised the standards in the base and saved many men to the command." Dr. Barsky graduated from Jefferson Medical College of Philadelphia in 1914 and entered the service Sept. 23, 1940.

MAJOR STEPHEN W. ONDASH AWARDED LEGION OF MERIT

Major Stephen W. Ondash, formerly of Youngstown, Ohio, has been awarded the Legion of Merit "for exceptionally meritorious conduct in the performance of outstanding service from September 1941 to April 1942. During this period he served as surgeon for United States Engineer Department employees and a group of civilian workers at a barren and desolate station in Greenland, north of the arctic circle. Given four engineer employees without previous medical or surgical experience, he trained them to competence and instructed the only other officer in the detachment until he qualified as an anesthetist. Despite the rigorous weather and wind conditions at this isolated position, coupled with a lack of equipment

facilities, his skill was such that no loss of life occurred among the station personnel. Major Ondash's work was such as to secure the confidence of all employees and heighten their morale and efficiency." Dr. Ondash graduated from St. Louis University School of Medicine in 1936 and entered the service Sept. 1, 1940.

MAJOR JAMES H. GRAMMER AWARDED LEGION OF MERIT

Major James H. Grammer, formerly of Bryan, Texas, has been awarded the Legion of Merit for "exceptionally meritorious conduct in the performance of outstanding services in New Guinea from Aug. 1 to Nov. 13, 1943. At an advanced operational base close to the enemy lines, Major Grammer served as flight surgeon for his group and as acting flight surgeon for an air task force. In addition to maintaining the health of pilots and ground crews, he immediately organized and carried out a vigorous sanitation program to control the tropical diseases prevalent in this area. He supervised the evacuation of the sick and wounded from this area, aided in the selection of field hospital sites and set up first aid stations to care for casualties at two airfields. So successful were the sanitary measures taken that the incidence of diseases was lower than expected. Major Grammer carried out this complex medical program with admirable skill and energy. His services constituted a valuable contribution to our success in this advanced area." Dr. Grammer graduated from the University of Texas Medical Branch, Galveston, in 1932 and entered the service April 1, 1941.

ETOUSA MEDICAL SOCIETY MEETING

At the Etousa Medical Society Meeting held at the Officers' Club, Headquarters, U. S. Strategic Air Forces in Europe, January 20, the program was opened by Brig. Gen. M. C. Grow, surgeon, U. S. Strategic Air Forces in Europe, followed by a few remarks by Brig. Gen. Paul R. Hawley, chief surgeon, Etousa. The following papers were then presented:

The Organization of Medical Service with an Air Force, and Summary of Medical Problems Peculiar to Aviation. Col. H. B. Wright, M. C., Professional Services Division, Hq. U. S. Strategic Air Forces in Europe.

Symposium on Protective Flying Equipment. Col. Harry G. Armstrong, M. C., assistant surgeon, U. S. Strategic Air Forces in Europe. Protective Flying Clothing and Oxygen Equipment. Capt. Richard J. Trockman, M. C., Eighth Air Force Central Medical Establishment.

Body Armor and Helmets. Lieut. Arthur Matin, M. A. C., Eighth Air Force.

Air/Sea Rescue Equipment. Lieut. Col. James J. Smith, M. C., Eighth Air Force Central Medical Establishment.

Recent Studies in Aero-Otitis Media. Lieut. Col. Norton Canfield, M. C., senior consultant otolaryngology, ETOUSA.

Normal Reactions to Combat Stress. Capt. David G. Wright, M. C., Eighth Air Force Central Medical Establishment.

Narcosis Treatment of Operational Exhaustion. Capt. Bernard C. Glueck, M. C., Eighth Air Force Central Medical Establishment.

Demonstration of Physiologic Phenomena Encountered in High Altitude Flying. Col. Harry G. Armstrong, M. C., assistant surgeon, U. S. Strategic Air Forces in Europe.

Results of Anoxia at High Altitude, with Presentation of Case Summaries. Major Oscar C. Olson, M. C., Surgeon, Third Bomb Division, Eighth Air Force.

A demonstration of equipment was given at the Eighth Air Force Museum.

During the meeting a business session was held at which the annual election of officers took place (THE JOURNAL, March 18, p. 782).

CAPT. EMERALD M. RALSTON AWARDED SILVER STAR

Capt. Emerald M. Ralston, formerly of Orleans, Neb., has been awarded the Silver Star for "gallantry in action near Mateur, Tunisia, May 6, 1943. He voluntarily proceeded over terrain swept by heavy enemy fire to administer first aid and to supervise the evacuation of the wounded. His noble and unselfish actions reduced suffering and saved many lives." Dr. Ralston graduated from Johns Hopkins University School of Medicine, Baltimore, in 1939 and entered the service May 20, 1942.

CERTAIN FOREIGN BIRDS OR THEIR PLUMAGE CANNOT BE IMPORTED

The War Department announced recently that military personnel overseas and in this country have been informed that it is unlawful to import into the United States or into any American territory certain foreign birds and animals and the plumage of wild birds. These include birds of paradise, aigrettes, egret plumes or so-called osprey plumes, or the feathers, quills, heads, wings, tails, skins or parts of skins of wild birds, either raw or manufactured and not for scientific or educational purposes. Also restricted are the mongoose, the so-called flying foxes or

fruit bats, the English sparrow, the starling, and such other birds and animals as the Secretary of the Interior may specify from time to time. All members of the parrot family are barred because of the danger of infection from psittacosis.

FLIGHT SURGEONS' ASSISTANTS

A class of one hundred and eleven flight surgeons' assistants completed the six weeks course in aviation medicine at the School of Aviation Medicine, Randolph Field, Texas, April 21. Brig. Gen. Eugen G. Reinartz, U. S. Army, is commandant of the school.

NAVY

CADET NURSE CORPS

The United States Cadet Nurse Corps established by the Bolton Bill (HR 2664), approved June 15, 1943, sponsors the education, under government supervision, of young women for the nursing profession. By amendment to this act the federal services (Army, Navy, Veterans' Administration, Public Health Service and Indian Service) are permitted to accept in government hospitals the senior cadet nurses for the final six months period of their training.

The Navy Department has set up the policies and an educational program for those cadet nurses entering naval hospitals. Complete information relative to policies and plans on the navy program have been disseminated to accredited schools of nursing as well as to prospective students. In addition, requests have been sent to all state boards of nurse examiners requesting approval of the naval hospitals which have been designated to give this training. Thus far the only two states from which this approval has not been received are Florida and Texas. The first classes of nurse cadet personnel in the Navy began April 1, 1944 at the U. S. Naval hospitals at Seattle with 7 students and at Chelsea, Mass., with 20 students. U. S. naval hospitals at St. Albans, N. Y., and Oakland, Calif., will start classes May 1 with an enrolment of 25 students each. The naval hospitals at Portsmouth, Va., and San Diego, Calif., will start classes June 1.

The Navy will be the first of the federal services to put this program into practical operation. As a result of planning, the details connected with messing arrangement, housing and transportation are settled and ready to handle the entire group of entering students. It is expected that the number of students entering subsequent classes will have larger student complements.

OFFICE OF REHABILITATION ESTABLISHED AT THE BUREAU OF MEDICINE AND SURGERY

The Navy Department recently announced that the Surgeon General has authorized the establishment of an Office of Rehabilitation in the Bureau of Medicine and Surgery. This office will develop, place in operation and direct the program of rehabilitation for the Medical Department of the U. S. Navy. Rehabilitation, as it relates to this program, shall be interpreted as meaning all activities and services which may be required to supplement the ordinary or usual therapeutic procedures in order to achieve maximum adjustment of the individual patient either for further military services or for return to civil life with the least possible handicap from his disability. The Office of Rehabilitation shall serve in an advisory capacity in suggesting such procedures as may be expected to shorten the convalescent period and contribute to the rehabilitation of the patient.

PUBLISH NEWSPAPER AT U. S. NAVAL HOSPITAL AT FARRAGUT, IDAHO

A small newspaper called the *Bedside Examiner* is published weekly and distributed free at the U. S. Naval Hospital, Farragut, Idaho. The issue of April 14 comprises six pages in which items of interest at this hospital, its personnel, social events, promotions and new assignments are printed. It con-

tains a column on "humor," a few cartoons, and some of its news items are illustrated. This small paper is published under the direction of Capt. H. S. Harding of the U. S. Naval Medical Corps, commanding officer, and is printed at no expense to the United States government.

CAPT. WALTER M. SIMPSON COMMENDED

Capt. Walter Malcolm Simpson, formerly of Dayton, Ohio, and now on duty at the U. S. Naval Hospital, Long Beach, Calif., received a letter of commendation "for meritorious performance of duty while serving as chief of medicine and later as executive officer of the first advanced naval base hospital to be established in the South Pacific Area during the period from April 12, 1942 to Nov. 1, 1943. Captain Simpson reflected great credit on himself by his outstanding professional ability, leadership and keen judgment. As liaison officer he dealt with officials of foreign nations with tact and diplomacy, thus contributing materially to the harmonious relations with foreign nationals. As president of the Malaria Control Commission and Sanitary Commission he organized and initiated the measures which led to the control of tropical diseases. His courageous conduct was in keeping with the highest traditions of the United States Naval Service." Dr. Simpson graduated from the University of Michigan Medical School, Ann Arbor, in 1924 and entered the service Jan. 3, 1941.

LIEUT. DEMERLE E. ECKHART AWARDED NAVY AND MARINE CORPS MEDAL

Lieut. Demerle E. Eckhart, formerly of Tescott, Kan., and now in the Medical Corps, U. S. Naval Reserve, was recently awarded the Navy and Marine Corps Medal "for heroic conduct while attached to the U. S. S. *Henley* on occasion of the torpedoing and sinking of that vessel by enemy Japanese forces in the Southwest Pacific Area, Oct. 3, 1943. Although he himself was covered with fuel oil, Lieutenant Eckhart labored tirelessly aboard heavily overloaded life rafts in order to render prompt first aid to survivors. Eventually picked up after nearly eight hours in the water, he continued his efforts in behalf of the wounded, rendering invaluable assistance to the medical officer of the rescue ship even though he was seriously ill as a result of swallowing quantities of oil. His courageous spirit of self sacrifice and steadfast devotion to duty were in keeping with the highest traditions of the United States Naval Service." Dr. Eckhart graduated from the University of Kansas School of Medicine in 1940 and entered the service July 18, 1942.

LIEUT. HORACE M. GEZON AWARDED LEGION OF MERIT

Lieut. Horace M. Gezon, formerly of Grand Rapids, Mich., and now a naval reserve corps officer, was recently awarded the Legion of Merit for his work during the typhus epidemic in Naples. The citation said that Dr. Gezon "took vigorous and effective measures to treat the cause" of the plague and "on one occasion personally inoculated and deloused the entire ship's company of a merchant ship." Dr. Gezon graduated from the University of Chicago School of Medicine in 1940 and entered the service early in 1942.

COMDR. HARRY RALPH HUSTON CITED

Comdr. Harry Ralph Huston, formerly of Dayton, Ohio, and now in the Medical Corps, United States Naval Reserve, has been cited "for meritorious performance of duty while serving at the first advanced naval base hospital to be established in the South Pacific area during the period from April 12, 1942 to Nov. 27, 1943. Commander Huston reflected great credit on himself by his outstanding professional ability and keen judgment in the surgical care of casualties and tropical diseases. His conduct throughout materially contributed to the success of our operations and was in keeping with the highest traditions of the United States Naval Service." Dr. Huston graduated from the Medical College of Virginia, Richmond, in 1920 and entered the service Jan. 12, 1942.

COMDR. OLIVER WILLIAM BUTLER CITED

Comdr. Oliver William Butler, formerly of Los Angeles and now in the Medical Corps of the United States Naval Reserve, has been cited "for meritorious performance of duty while serving as chief of urology and later as chief of surgery of the first advanced naval base hospital to be established in the South Pacific area during the period from April 12, 1942 to Oct. 30, 1943. Commander Butler reflected great credit on himself by his outstanding professional ability, leadership and keen judgment. His efficient handling of casualties materially contributed to the saving of many lives and to the success of our operations in that area. His conduct throughout was in keeping with the highest traditions of the United States Naval Service." Dr. Butler graduated from the University of California Medical School, Berkeley, in 1912 and entered the service July 18, 1941.

**CAPT. JAMES W. ELLIS AWARDED
LEGION OF MERIT**

Capt. James W. Ellis, formerly of Cheyenne, Wyo., has been awarded the Legion of Merit "for exceptionally meritorious conduct in the performance of outstanding services to the government of the United States as corps surgeon of a Marine amphibious corps engaged in operations in the Solomon Islands area from Aug. 7 to Dec. 15, 1943. During this period of concentrated offensive action Captain Ellis displayed expert professional ability, sound judgment and splendid initiative in his planning and supervision of the vitally essential medical activities. By his tireless efforts and unwavering devotion to duty throughout these operations, he contributed materially to the success of our forces in the occupation of the Treasury Islands, the diversionary landing on Choiseul Island and the establishment of an important beachhead at Empress Augusta Bay on enemy-held Bougainville." Dr. Ellis graduated from the University of Pennsylvania School of Medicine, Philadelphia, in 1915 and entered the service in 1917. He is at present on duty at the U. S. Naval Hospital, Great Lakes, Ill.

**LIEUT. MANNE PERRY ADAMS AWARDED
SILVER STAR MEDAL**

The Silver Star Medal was posthumously awarded to Lieut. Manne Perry Adams, Medical Corps, United States Naval Reserve, formerly of Sebring, Fla. The citation accompanying the award read "For conspicuous gallantry and intrepidity during action against numerically superior enemy Japanese forces near Koi-ari, Bougainville, British Solomon Islands, on Nov. 29, 1943. Attached to a company which was under extremely heavy machine gun, mortar and sniper fire, Lieutenant Adams repeatedly ministered to wounded men while under fire. On one occasion he unhesitatingly exposed himself directly to Japanese sniper fire in order to administer blood plasma to a severely wounded man and was instantly killed while performing his task. Lieutenant Adams's courageous spirit of self sacrifice in behalf of the men under his professional care and his valiant conduct in the face of grave peril were in keeping with the highest traditions of the United States Naval Service. He gallantly gave his life for his country." Dr. Adams graduated from Emory University School of Medicine, Atlanta, Ga., in 1941 and entered the service July 14, 1942.

**COMDR. EMMETT L. CALHOUN AWARDED
SILVER STAR MEDAL**

Comdr. Emmett L. Calhoun, formerly of Hoquiam, Wash., and now in the Medical Corps of the United States Naval Reserve, has been awarded the Silver Star Medal "for conspicuous gallantry and intrepidity while serving aboard the U. S. S. *Northampton* during the engagement with enemy Japanese naval forces in the Solomon Islands area on Oct. 26-27, 1942. Despite his weakened condition after undergoing a major emergency operation, Commander Calhoun (then lieutenant commander) insisted on manning his battle station during the action and, as a result of the furious enemy attack, was seriously injured. The next day when 114 wounded survivors were received aboard his ship he worked tirelessly to relieve their suffering and, although seriously ill himself, continued his labors for a period of four days, undoubtedly saving many lives that otherwise might have been lost. His valiant self sacrifice and unfailing devotion to duty were in keeping with the highest traditions of the United States Naval Service." Dr. Calhoun graduated from Northwestern University Medical School, Chicago, in 1925 and entered the service Feb. 28, 1942.

**LIEUT. EDWARD M. WURZEL AWARDED
SILVER STAR MEDAL**

Lieut. Edward M. Wurzel, formerly of New York, has been awarded the Silver Star Medal "for conspicuous gallantry and intrepidity during action against numerically superior enemy Japanese forces near Koi-ari, Bougainville Islands, British Solomon Islands, on Nov. 29, 1943. Valiantly risking his life in almost continuous Japanese fire from machine guns, mortars and rifles, Lieutenant Wurzel (then lieutenant, junior grade) worked tirelessly under the most perilous conditions to attend the dying and wounded. His courageous fortitude and outstanding skill while serving the men under his professional care were in keeping with the highest traditions of the United States Naval Service." Lieutenant Wurzel graduated from New York Medical College, Flower and Fifth Avenue Hospitals, in 1941 and entered the service following his internship in 1942.

COMDR. ALPHONSE McMAHON CITED

Comdr. Alphonse McMahon, formerly of St. Louis and now in the Medical Corps, U. S. Naval Reserve, was recently cited "for meritorious performance of duty while serving at the first advanced naval base hospital to be established in the South Pacific area during the period from April 12, 1942 to Oct. 21, 1943. Commander McMahon reflected great credit on himself by his outstanding professional ability and keen judgment, particularly in the management of war wounds and in the treatment of tropical diseases. His long experience as a teacher of medicine and his effective leadership in the instruction of young medical officers contributed materially to the success of our operations and was in keeping with the highest traditions of the United States Naval Service." Dr. McMahon graduated from St. Louis University School of Medicine in 1919 and entered the service April 12, 1942. He served as vice president of the American Medical Association in 1938-1939.

COMDR. WILLIAM HARRY LEAKE CITED

Comdr. William Harry Leake, formerly of Beverly Hills, Calif., and now in the Medical Corps, U. S. Naval Reserve, has been cited "for meritorious performance of duty while serving as chief of medicine of the first advanced naval base hospital to be established in the South Pacific area during the period from April 12, 1942 to Nov. 6, 1943. Commander Leake reflected great credit on himself by his outstanding professional ability, leadership and keen judgment. His efficient handling of casualties materially contributed to the saving of many lives and to the success of our operations in that area. His conduct throughout was in keeping with the highest traditions of the United States Naval Service." Dr. Leake graduated from Vanderbilt University School of Medicine, Nashville, Tenn., in 1916 and entered the service Sept. 2, 1941.

MISCELLANEOUS

MEDICAL FACILITIES FOR WOUNDED IN
FORTHCOMING INVASION OF EUROPE

The War Shipping Administration, following recent discussions with the British Ministry of War Transport and British and American army officials, announced that American and British army medical facilities will be available to all United Nations seamen who may be wounded in the forthcoming invasion of Europe. Casualties will be registered and cleared through the British Ministry of War Transport and the Recruitment and Manning Organization of WSA. These two agencies will arrange to have men treated at British and American army hospitals in the United Kingdom or at army casualty stations on the beachheads. An extensive machinery has been set up in the United Kingdom to handle casualties and to arrange for transportation from the continent to hospitals in Britain.

The aid of the United Seamen's Service was enlisted in the program through USS personal service departments. The United Seamen's Service will make arrangements to assist survivors and accommodate convalescents at six USS clubs in the United Kingdom. The War Shipping Administration now has men in all principal seaports not only to man ships and make crew replacements in event of casualties but also to arrange for the transfer and hospitalization of seamen from all United Nations.

SUMMER GRADUATE COURSES AND
WORKSHOPS FOR NURSES

The National Nursing Council for War Service, Inc., New York, recently announced that 33 colleges and universities have already stated their plans for summer courses and institutes; 27 are giving courses for public health nurses which have been approved by the National Organization for Public Health Nursing and 14 are offering short term workshops in problems of administration and education. Federal funds under the Bolton act have been allotted to 34 institutions offering postgraduate programs. Some of the courses begin before the end of May, while others are scheduled for June, July or August. Decisions must be made soon, therefore, by hospital administrators, executives and employing boards as well as by the nurses themselves. Far seeing administrators are already selecting the nurses who have shown special promise and are arranging leaves of absence for them. The fact that there are approximately 3,200 unfilled teaching, supervisory and head nurse positions in schools of nursing and hospitals has been revealed by a recent study made by the National League of Nursing Education, which comments that many additional positions are filled inadequately by persons lacking the necessary experience.

The status of the nurse taking postgraduate study is thus defined by the Procurement and Assignment Service:

You will be classified as essential if you are preparing for an essential position, are potentially qualified for such position, can be prepared in the briefest possible time and can be replaced by a qualified nurse during your absence.

The tasks of teaching and administration now carried on under conditions of wartime stress and strain are clearly recognized as basic to the provision of adequate nursing care for military and civilian needs. Those who give these courses and those who take them, under the foregoing definition, are rendering a patriotic service.

MEDICAL AND SURGICAL RELIEF
COMMITTEE OF AMERICA

The Medical and Surgical Relief Committee of America, 420 Lexington Avenue, New York, recently donated its 1,000th small vessel medical kit, designed for use on board submarine hunting, patrolling and landing craft to Capt. Ernest R. Eaton of the Navy Medical Supply Corps. Specially designed by committee physicians for small doctorless craft, the kits are equipped to give professional on the spot treatment to the ill or injured until they can be safely transferred to a base hos-

pital. To enable pharmacists' mates and nonmedical officers to make effective use of its contents, detailed instructions are included in each set. In addition to the bandages, instrument roll and essential drugs the kit contains a shipwreck unit—a simple fishing rig, dried bait, metal signaling mirrors and a sturdy floating knife. Since the kits are easily carried and packed for immediate use they can be rushed directly to the casualties in emergencies or during combat.

The committee's Navy program is but one phase of its medical relief work. To date, more than \$620,000 of medical, dental and surgical supplies have been donated to the fighting forces of the Allies, war zone hospitals, needy welfare groups, medical missionaries and community nurseries throughout the free world.

HOSPITALS NEEDING INTERNS
AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

(Continuation of list in THE JOURNAL, May 6, page 38)

CALIFORNIA

Permanente Field Hospital, Oakland. Capacity, 134; admissions, 3,693. Dr. S. R. Garfield, Superintendent (interns).

DELAWARE

Delaware Hospital, Wilmington. Capacity, 411; admissions, 7,929. Mr. C. A. Hume, Superintendent (interns—October 1).

DISTRICT OF COLUMBIA

St. Elizabeths Hospital, Washington. Capacity, 7,471; admissions, 3,457. Dr. Winfred Overholser, Superintendent (4 interns—October 1).

NEW YORK

Binghamton City Hospital, Binghamton. Capacity, 559; admissions, 10,475. Mr. Jerome F. Peck, Superintendent (interns—July, September, October).

Mary Immaculate Hospital, Jamaica. Capacity, 316; admissions, 9,452. Sister M. Eugenia, Superintendent (4 interns—October).

Hospital for Joint Diseases, New York City. Capacity, 362; admissions, 5,531. Dr. J. J. Golub, Director (4 interns, Oct. 1, 1944; 8 interns, July 1, 1945).

Lincoln Hospital, New York City. Capacity, 469; admissions, 9,521. Dr. Randolph A. Wyma, Superintendent (interns—October 1).

PENNSYLVANIA

Hamot Hospital, Erie. Capacity, 255; admissions, 6,896. Mr. Donald M. Rosenberger, Director (3 interns—October 1).

WASHINGTON

Pierce County Hospital, Tacoma. Capacity, 239; admissions, 2,768. Dr. Burton A. Brown, Administrator (interns—July 1).

NOTED EXPERT IN TRAINING OF
DEAF JOINS RED CROSS

Miss Betty C. Wright, one of the nation's foremost social workers in the field of assistance to the deaf, has joined the American Red Cross to aid in continuing its efforts to provide all possible recreational and social services to war injured veterans. Miss Wright, herself deaf, was granted a leave of absence from her position as executive director of the American Society of the Hard of Hearing. She will act as consultant to the Red Cross on special problems of war deafened soldiers, dividing her time between the three hospitals designated by the Army for special care of deaf veterans: the Deshon General Hospital, Butler, Pa., the Hoff General Hospital in California and the Borden General Hospital in Oklahoma.

Miss Wright worked in the Navy during the first world war, later served an apprenticeship with the Volta Bureau in Washington, D. C., and has been with the American Society for the Hard of Hearing since 1923. It will be her aim, through the Red Cross hospital program, to bring to each

deafened veteran the realization that he can be and is a productive member of society, that he has a wide choice of occupation, either immediately through the United States Employment Service or through retraining or special instruction, and that he is not shut off from activities he enjoyed before injury.

NEW MINIMUM STANDARD LIST OF MEDICAL SUPPLIES TO BE CARRIED ON ALL WSA VESSELS

The War Shipping Administration recently announced that the minimum standard requirements for drugs, chemicals and surgical supplies to be carried on all vessels owned or under bareboat charter to the War Shipping Administration have been revised and expanded. In addition to a minimum standard drug and medical supply, the new regulation provides that complete instructions for the use of the medications be available. The complete instructions will be included in the revised edition of the United States Public Health Service's publication "Ship's Medicine Chest and First Aid at Sea," which will be placed aboard all vessels. General agents are charged with the responsibility for seeing that all vessels owned or bareboat chartered to WSA are kept stocked with the prescribed medical supplies. The new minimum standard list of medical supplies was compiled on the basis of a seventy-five man crew for a voyage of three months for use on vessels not carrying a ship's doctor. Where a larger or smaller crew, or a voyage of more or less than three months' duration is planned, the drug supply may be adjusted proportionately. Plasma, penicillin and vaccines are to be placed aboard ship only if the vessel carries a ship's surgeon or a graduate hospital corpsman from the U. S. Maritime Service Training Station Hospital Corps School at Sheepshead Bay, N. Y. These corpsmen combine hospital duties aboard ship with the functions of junior assistant pursers. Up to April, approximately 1,200 men were trained for this service.

DR. WILBUR A. SAWYER APPOINTED DIRECTOR OF HEALTH OF UNRRA

Dr. Wilbur A. Sawyer, New York City, has been appointed Director of Health of the United Nations Relief and Rehabilitation Administration, according to a recent announcement by Herbert H. Lehman, director general of UNRRA. He will be assigned to Washington and will be in charge of the Health Division of UNRRA and be responsible for planning and directing health and medical activities. His duties will require frequent visits abroad to the regional offices and field work. Dr. Sawyer has had long experience in international health activities through his connection with the Rockefeller Foundation's International Health Division, of which he has been director for the past nine years.

GAS GANGRENE ANTITOXIN FOR LEND-LEASE

The Chemicals Bureau of the War Production Board reported recently that members of the WPB Gas Gangrene Antitoxin Producers Industry Advisory Committee had been asked to submit proposals for producing all or any part of 1,350,000 doses of gas gangrene antitoxin for lend-lease. Members of the committee informed Chemicals Bureau officials that manpower shortages would constitute the biggest obstacle to production of the antitoxin, although only between 100 and 200 men would be needed.

WARTIME GRADUATE MEDICAL MEETINGS

Additional subjects and speakers for Wartime Graduate Medical Meetings have just been announced:

At Fort George G. Meade, Maryland: General Discussion of Psychosomatic Medicine, Dr. John Whitehorn, May 19; Bronchiectasis, Dr. Edgar W. Davis, May 26.

HEALTH CRISIS IN THE NETHERLANDS

According to a recent release from the Netherlands Information Bureau, New York, long after the Nazis are driven out of Holland the effects of their occupation will be painfully evident in the lowered physical condition of the populace. Data reveal that the general death rate has increased from 8.6 per thousand in 1939 to 9.5 per thousand in 1942. Infant mortality is even more serious; in 1939 the rate was 34 per thousand; in 1941, only one year after the German invasion, it had advanced to 43 per thousand.

Deaths from tuberculosis increased nearly 100 per cent, from 41.2 per hundred thousand in 1939 to 80.7 per hundred thousand in the spring of 1943. Furthermore, investigations undertaken in 1942 by the Central Bureau of Statistics revealed that 20,000 more cases required sanatorium treatment that year than in the preceding twelve months period.

Rickets is another disease that results from malnutrition and is caused by lack of food containing vitamin D; it has been established that only 1 Dutch child in 3 receives this vitamin in normal amounts. In one hospital alone 11 out of 40 child patients had rickets, which was virtually unknown in prewar Holland.

Some infectious diseases have shown an alarming increase. Scarlet fever cases jumped from 7,197 in 1941 to 23,000 in 1943. Diphtheria, which had averaged little more than 1,270 cases in 1938 and 1939, increased to 19,400 cases in 1942, with 40,336 cases reported during the first ten months of 1943.

The health of the people in the Netherlands, according to a recent release from the Netherlands Information Bureau, New York, is endangered by serious shortages of drugs, hospital facilities and nurses. At the end of 1942 the country's chief health inspector issued a list of sixty-seven medicinal preparations of which there was a scarcity. These included boric acid, cocaine, caffeine, strychnine, castor oil, bismuth preparations, aneurine, camphor, iodine, calomel, chloroform, codeine, aminopyrine, gold preparations, morphine, opium, liquid petrolatum and metrazol.

An added blow fell with the "unexpected" disappearance last year of insulin stocks. Total consumption of the drug had to be halved. By the middle of February the supply to patients whose quota had been 20 units was cut off altogether; the seriously ill were compelled to manage on small quantities. Until the end of last year insulin could still be bought in the black market at five times the normal price. Many sufferers from diabetes were, however, forced to resort to methods used prior to the discovery of insulin. Among these is the "hunger cure," which, according to the secret document, is a potent means for fighting complications.

A further complicating factor is the shortage of trained medical personnel—physicians and nurses. Doctors who have not gone underground or been deported are terribly overworked. Owing to the disorganization of the universities the usual quota of 330 medical graduates was not filled last year, so that an added burden was thrown on the older practitioners. Consequently, when the Germans made preparations to transfer 1,500 doctors to the reich, the Dutch physicians threatened to go on strike, and for the time being, at least, the matter was dropped.

The *Nationale Dagblad*, Utrecht, of Dec. 22, 1943 quotes an article on a disease which has spread extensively during the war—scabies. "Before the war a doctor had hardly 1 case a year, but now it may happen that he has 10 a week. The spread of the disease is attributed to the fact that the population comes into contact with less hygienic persons from other countries."

DIPHTHERIA IN BULGARIA

According to Zora, January 4 (Bulgaria), the number of cases of diphtheria has continually increased since 1942. The question of diphtheria is today very complicated, because its spreading has been noticed almost everywhere; even those places which have escaped it until now are threatened. The chief public health directorate has issued a circular explaining the spreading of the disease. The population must be informed how to fight diphtheria. Children in infected places will be inoculated.

ORGANIZATION SECTION

TRANSPORTATION TO THE ANNUAL SESSION

The following letter was sent from the Office of Defense Transportation to Dr. Olin West, General Manager of the American Medical Association:

Dear Dr. West:

It is my understanding that the American Medical Association has decided that it is essential, both from the standpoint of the war effort, as well as its own organizational problems, to meet this year and that meeting has been set for Chicago, June 12 to 16.

In line with our policy as announced in the press from time to time, and concerning which you have been informed in communications addressed directly to you, the Office of Defense Transportation, in requesting the cancellation of all conventions which can be canceled without detriment to the war effort, is leaving to each organization the decision as to the essentiality of its meeting. We were grateful for the cooperation of the American Medical Association in its cancellation of its convention last year. Although we had hoped that similar action might be taken with respect to the 1944 convention, we are entirely willing to abide by your decision, which I am sure was made after giving full consideration to the very serious transportation situation as has been outlined in ODT communications addressed to you.

What I would like to ask, if you have not already done so, is that you take steps to limit the attendance at the A. M. A. convention to the minimum of those whose presence is essential to carrying on the affairs of the Association. I especially hope that you will urge in all your preliminary announcements of the convention that all visitors whose presence is not necessary, including the families of physicians attending, remain at home.

I would also appreciate it if you would call the attention of prospective exhibitors to our previously announced request that exhibitors at conventions, trade shows and other meetings refrain from shipping booths and large and bulky exhibits and exhibit materials, in order to conserve much needed train and truck space. If the American Medical Association itself could request these exhibitors to restrict their activities at the convention to the distribution of literature which could be shipped without taking up much space, I feel sure that it would accomplish the desired purpose.

In appreciation of your anticipated cooperation, I am

Yours very truly,
M. D. RIGGS.

Assistant Director, Passenger Section, Division of Traffic Movement.

OFFICIAL NOTES

COMMITTEE ON POSTWAR MEDICAL SERVICE

Meeting, New York, April 29, 1944

The Committee on Postwar Medical Service met in New York City on April 29, 1944. There were present Dr. Irvin Abell, Dr. Francis G. Blake, Comdr. Edward L. Bortz, Dr. Frederick A. Collier, Surg. Gen. Warren F. Draper, Capt. W. E. Eaton, Dr. Morris Fishbein, Lieut. Col. Gerard R. Gessner, Dr. Joseph M. Glaser, Dr. Alan Gregg, Dr. Ernest E. Irons, Dr. Roger I. Lee, Lieut. Col. Harold C. Lueth, Dr. Walter W. Palmer, Dr. James E. Paullin, Dr. George M. Piersol, Lieut. Col. George M. Powell, Dr. Willard S. Rappleye, Dr. H. H. Shoulders and Miss Mary Switzer.

REPRESENTATION ON THE COMMITTEE

The Chairman, Dr. Roger I. Lee, opened the meeting with a discussion of the nature of the Committee's work as related to numerous requests which have been received from various organizations for representation on the Committee. The Committee cannot assume the status of an organization representing a wide variety of organizations without losing its functions as a committee and its status originally established by collaboration between the American Medical Association, the American College of Physicians and the American College of Surgeons. The Committee is glad to have an expression of the point of

view of a wide range of individuals and groups concerned with postwar service problems but does not consider it wise so to extend its membership as to become unwieldy and so defeat its original purpose. It was moved, seconded and passed that no representatives from additional groups be added to the Committee membership for the present.

RETURNS FROM QUESTIONNAIRE

The Committee heard an informal presentation by Lieutenant Colonel Lueth on the sample questionnaire returns covering 500 individuals. This questionnaire was sent out in order to test the questions to be posed in a larger questionnaire and arrive at the best formulation and arrangement of the questionnaire to be sent to large numbers of men in military service. Lieutenant Colonel Lueth's recommendation that the items in the questionnaire bearing on education be somewhat extended was approved. It was reported that authorization has been obtained to send the questionnaire as revised to medical officers in the Army, Navy and the United States Public Health Service, and it was agreed that steps should be taken promptly to proceed with the preparation and mailing of questionnaires.

PROCUREMENT AND ASSIGNMENT SERVICE

After extended discussion it was moved, seconded and passed that the Chair appoint a committee to prepare suggestions and recommendations to the National Administration of Procure-

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ment and Assignment regarding the basic considerations to be observed in the releasing of medical men from military service at the time of demobilization. Dr. Lee appointed Drs. W. W. Palmer, W. C. Rappleye and Allan Gregg, with Dr. Palmer as chairman of this committee. Dr. Ernest E. Irons reported that the Trustees of the American Medical Association would wish to cooperate in the maintenance of an information service, which, however, would not have the function of a placement bureau but merely act as a source of information. Dr. Lee will prepare a report for the House of Delegates on the work of the Committee. It was moved, seconded and passed that the Committee request Dr. Lee to lay some emphasis in his report to the House of Delegates on the importance of collaboration between the state medical societies and the Procurement and Assignment officers and offices in each state. The records of Procurement and Assignment are of singular value in arriving at satisfactory estimates as to the number of physicians needed in different areas of each state. It would be unfortunate to have such records disregarded or not available to the state medical societies.

The next meeting of the Committee was fixed for Wednesday, June 14, at the Palmer House in Chicago at 10 a. m.

DOCTORS AT WAR

Radio broadcasts of Doctors at War by the American Medical Association in cooperation with the National Broadcasting Company and the Medical Department of the United States Army and the United States Navy are on the air each Saturday at 4:30 p. m. Eastern war time (3:30 Central war time, 2:30 Mountain war time and 1:30 Pacific war time).

The titles and guest speakers for the next three programs are as follows:

May 13. Canceled.¹

May 20. "War Nerves."

Speaker, Lieut. Col. Harold C. Lueth, M. C., A. U. S., Surgeon General's Liaison Officer, American Medical Association.

May 27. "Fatal Mistakes."

Speaker, Forrest E. Long, M.D., director, School and College Safety Division, National Safety Council.

1. At the request of the Office of War Information, Doctors at War relinquished its network time in order that the United States Public Health Service, Division of Nurse Education, might be able to broadcast a nationwide induction program for the Cadet Nurse Corps. Doctors at War will continue to be on the air regularly through and including July 1. The American Medical Association is happy to render this service to the United States Public Health Service and to the cause of the Cadet Nurse Corps.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—S. 1767, which has already passed the Senate, has been favorably reported to the House in an amended form, a bill to provide federal aid for the readjustment to civilian life of returning World War II veterans. As passed by the Senate, this bill authorized an appropriation of \$500,000,000 for the construction of additional hospital facilities for veterans. As reported to the House it appropriated from time to time "such sums as may be necessary for the construction of additional hospital facilities." H. J. Res. 271 has passed the House, proposing an additional appropriation of \$6,700,000 for use during the remainder of the present fiscal year for emergency maternity and infant care for the wives and infants of enlisted men in the armed forces. H. R. 3846 has been reported to the House in an amended form, a bill to provide for the education and training of members of the armed forces after their separation from service. H. R. 4278 has passed the Senate, a bill providing, among other things, for the carrying out of agricultural conservation and related agricultural programs. An amendment adopted on the floor of the Senate provides that none of the money made available in the Department of Agriculture Appropriation Act, 1944, for loans, grants and rural rehabilitation shall be used in the promotion or aid of any program of medical care which prevents the patient from having the services of any practitioner of his own choice so long as state laws are complied with. This amendment was submitted by Senator Bushfield, South Dakota. H. R. 4519 and S. 1726 have been reported to the Senate, authorizing an appropriation of \$1,000,000 to enable the Administrator of Veterans' Affairs to furnish seeing eye dogs for veterans.

Bills Introduced.—The President has transmitted to the Congress a supplemental estimate of appropriation for the emergency maternity and infant care program for the wives and infants of men in the armed forces (H. Doc. 561). The initial estimate for the program for the fiscal year 1945 was \$20,000,000. The President has recommended that this be increased to \$42,800,000. H. R. 4688, introduced by Representative Hollifield, California, provides that on and after July 1, 1943 each member of the various Selective Service local boards, each government appeal agent and each examining physician who assists in the administration of the Selective Training and Service Act shall be entitled to receive compensation at the rate of \$600 per annum, payable monthly. H. R. 4708, introduced by Representative Bloom, New York, proposes to amend the Federal Food, Drug and Cosmetic Act so as to provide that a drug shall be deemed misbranded if it contains any quantity of boric acid or of any other substance which is poisonous when used internally and which is similar in appearance to

another drug which is for use internally, unless it bears a label containing the statement "Warning—Poisonous If Used Internally." H. R. 4741, introduced by Representative Spence, Kentucky, proposes to provide for water pollution control activities in the Public Health Service. H. R. 4760, introduced by Representative Lane, Massachusetts, provides that any member of the land or naval forces of the United States who is or has been a registered male nurse and who is performing duties as a nurse comparable to the duties performed by members of the Army Nurse Corps (female) or Navy Nurse Corps (female) shall be appointed by the Secretary of War or the Secretary of the Navy to the relative rank of second lieutenant in the Army or ensign in the Navy, as the case may be.

ADDITIONAL FUNDS FOR OBSTETRIC AND PEDIATRIC PROGRAM

It will be of interest to physicians to learn that, since the hearings, concluded April 27, on the estimates of appropriations for a continuation of the program for supplying obstetric and pediatric care for the wives and infants of servicemen, the President has requested additional appropriations for the program. Apparently the funds that have already been appropriated for this fiscal year are about exhausted. Therefore Congress has been requested to make available an additional appropriation of \$6,700,000 to continue the program during the remainder of May and during June. Without this additional appropriation, it is said, the states will have to suspend authorizations. Last March it was estimated in the Budget that \$20,000,000 would be needed for the program for the fiscal year 1945. It was on this estimate that the recently concluded hearings were scheduled. Now the President has transmitted to Congress a recommendation of the director of the Bureau of the Budget that \$42,800,000 be appropriated for use during the next fiscal year, an increase over the initial estimate of \$22,800,000. In support of this increase, the Director said in his letter to the President:

Estimates previously made of the requirements of this program for fiscal year 1945 were considered adequate on the basis of information then available. Succeeding events have materially altered the basic assumptions, and information recently made available to the Children's Bureau by Service Headquarters of the armed forces has caused the bureau to revise its estimates for grants to states to take care of an increasing number of applications for care which are anticipated in 1945.

These new requests for appropriations were referred to the House Committee on Appropriations and a joint resolution, H. J. Res. 271, authorizing the \$6,700,000 has already been introduced and passed by the House of Representatives. Its passage by the Senate will no doubt be expedited.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

State Medical Election.—Dr. Walter F. Scott, Birmingham, was elected president of the Medical Association of the State of Alabama at its meeting in Montgomery, April 20. Dr. Douglas L. Cannon, Montgomery, is the secretary. The association will hold its 1945 session in Birmingham, April 17-19.

ARKANSAS

Dr. McLean Ends Thirty-Six Years as Secretary.—With his recent election to the presidency of the Montgomery County Medical Society Dr. John H. McLean, Caddo Gap, completed thirty-six years' service as secretary of the society. He was elected to the position of the society March 1, 1908 and served continuously until March 1 this year. Dr. McLean, who has been practicing since 1902, is an honorary member of the Arkansas Medical Society.

CALIFORNIA

Tuberculosis Associations Merged.—The Los Angeles Tuberculosis and Health Association and the Los Angeles County Tuberculosis and Health Association have been consolidated under the name of the latter. Glenn V. Armstrong, executive secretary of the city association, will hold a similar position with the combined group.

The Dock Lecture.—"Medical Education Goes Westward" was the title of the annual George Dock Lecture, April 6, by William F. Norwood, Ph.D., associate professor of the history of medicine and assistant dean of the College of Medical Evangelists, Los Angeles. The George Dock Lectures are presented by the Barlow Society for the History of Medicine.

Personal.—Dr. David M. Ghrist, Glendale, was presented on March 20 with a certificate of membership emeritus in the American College of Radiology. This is said to be the first time that this honor has been issued to a member of the college by its board of chancellors, the action being established at a meeting of the board on February 13.—Capt. George F. Cottle (MC), retired, has recently been made an honorary member of the Los Angeles County Medical Association; he is the third person to receive this honor in the association.

GEORGIA

University News.—Ernest C. Faust, Ph.D., professor of medical parasitology and head of the division of tropical medicine, Tulane University of Louisiana School of Medicine, New Orleans, discussed "Some Biological Interrelationships," April 14, at the formal installation at Emory University, Atlanta, of a chapter of the Society of the Sigma Xi.

New Wing at University of Georgia Hospital.—The new wing at the University Hospital, Augusta, now under construction, is expected to be finished by July 15. The construction will be two stories high, but arrangements have been made for a possible later addition of two more stories. The construction cost will be about \$124,000, with equipment costs to run about \$20,000. Half of the total cost will be paid by the Federal Works Agency and the other half by Augusta Revenue Bonds. The building is of reinforced concrete frame, veneered with brick to match old buildings.

ILLINOIS

Public Health Meeting.—The fourth annual scientific meeting of the Illinois Public Health Association and the second war conference will be held at Hotel La Salle, Chicago, May 15-16. Speakers at the various sessions of groups participating in this meeting will include:

Estella Ford Warner, senior surgeon, U. S. Public Health Service, Whitehouse in Public Health.
Chauncey D. Leake, Ph.D., Galveston, Texas, Antibodies and Chemotherapy.
Dr. Arthur Massey, Coventry, England, New Trends in the British Health Services.

One session will be devoted to postwar problems in tropical diseases, with Dr. Walter C. Earle, Champaign, Joseph C. McCaffrey, M.P.H., Springfield, and William J. Downer, B.S., Springfield, as the speakers. There will be an open forum on "Evaluation of Local Health Work," with Dr. Edward A.

Piszczek, Chicago, secretary of the Illinois Public Health Association, acting as chairman, and George T. Palmer, Dr.P.H., Springfield, discussing "Evaluation Schedules, Development of Reporting Areas and Use of Health Indices."

Chicago

Loyola Alumni Luncheon.—The alumni of Loyola University School of Medicine will hold a luncheon meeting during the session of the Illinois State Medical Society in room 8 of the Palmer House at noon, May 17.

Hematology Research Foundation.—Dr. Raphael Isaacs, chief of the hematology research laboratory, Michael Reese Hospital, has been named medical director of the newly incorporated Hematology Research Foundation. The foundation has been set up by a number of prominent lay persons who are currently seeking funds to finance the project. One of the first problems for consideration by the new group will be a study of leukemia.

Boric Acid to Be Colored.—The Chicago Department of Health adopted a resolution May 3 requiring the coloring of boric acid used in maternity wards as a precautionary measure to prevent the possible poisoning of babies. Similar action was taken recently by the New York City Department of Health. The order makes it unlawful to store boric acid for use in maternity wards of hospitals unless it is colored red by the addition of harmless amaranth dye. The coloring is not to be used for boric acid intended for application to the area of the eyes. The order further provides that boric acid, whether colored or not, shall not be kept in a room where feedings for infants are prepared.

Portrait of Dr. Wilson.—An oil portrait of Dr. John Gordon Wilson, chairman of the department of otolaryngology at Northwestern University Medical School, was presented to Dr. James Roscoe Miller, dean, for the medical school on behalf of associates and friends of Dr. Wilson. Dr. John F. Delph, associate professor of otolaryngology at Northwestern, made the presentation at a tea in the Archibald Church Library, April 28. The portrait is the work of Paul Trebilcock. Dr. Wilson has been associated with Northwestern since 1908, when he was named professor and head of the department of otology. In 1920 he was named professor and chairman of the department of otolaryngology.

Ricketts Prize Awarded to Dr. Thompson.—The Howard Taylor Ricketts Prize was awarded to Paul Everett Thompson, Ph.D., by the University of Chicago, May 3, for his "outstanding research on malaria" at the university. Dr. Thompson's work, according to a release from the university, resulted in the discovery of three new species of malarial parasites peculiar to lizards from Mexico and Florida and contributed significantly to knowledge of the life cycle of malaria. It was stated that his work in a field not previously investigated is considered helpful in understanding some of the current problems of malaria. Dr. Thompson received his doctor of philosophy degree at the University of Chicago in 1943. He has been working as Mr. and Mrs. Logan research fellow and on June 1 will leave the university to become assistant professor in the department of tropical diseases at Tulane University of Louisiana School of Medicine, New Orleans.

Maud Slye Retires.—Maud Slye, Sc.D., since 1926 associate professor of pathology, University of Chicago School of Medicine, will retire from the university effective July 1. Dr. Slye first joined the university in 1896 as a part time secretary to William Rainey Harper, first president of the university. She was instructor in pathology at the university from 1919 to 1922 and assistant professor from 1922 to 1926. In 1914 she received the gold medal of the American Medical Association for her scientific exhibit on the transmission of hereditary cancer and other diseases in mice, in 1915 the Ricketts Prize of the University of Chicago and in 1922 the gold medal of the Radiological Society of North America. A release from the university states that in the past thirty-eight years Dr. Slye in her experiments has observed 108 generations of mice, keeping records of 150,000 of their family trees. The retirement of Dr. Mercy A. Southwick as instructor of pathologic technic is also announced. Dr. Southwick and Dr. Slye will be retired with the title of emeritus.

INDIANA

Basic English and Medicine.—The current issue of the *Quarterly Bulletin* of the Indiana University Medical Center as an experiment published one of its medical articles in Basic English and asks alumni of the Indiana University School of Medicine, Indianapolis, now serving the army forces in all

parts of the world to report "concerning the advisability of translating more of our discussions into this global language." In an editorial discussing the reasons for the experimental use of the Basic English idea, Dr. Jacob K. Berman, Indianapolis, editor of the bulletin, states:

In medicine, physicians have always spoken in a more or less basic tongue. Medical terms are usually of Latin or Greek derivation and, although slightly variegated in the different languages, the stem is the same so that the word could be easily recognized by the scientists of all nationalities. The descriptions of disease, its symptoms, signs and its management have been in the vernacular of the nation from which they originated. This has made necessary international abstracts with more or less accurate translations which are carried by various national medical periodicals. If some universal speech was used, this would be unnecessary.

English lends itself best to this formula of simplification. There has been a trend away from the Greek names of operations for some time. Our classification of operations for filing is that of the Western Surgical Association, which advocates English words. Formerly the removal of the vermiform appendix was classified as appendectomy or appendicectomy. Today we prefer to use the term "excision of the appendix." Since the word excision does not exist in Basic English, we would be forced to use the phrase "taking of the appendix," or "taking out of the appendix." Basic English does not attempt to take away scientific terms; however, these would be held to a minimum.

KENTUCKY

State Association News.—The council of the Kentucky State Medical Association has accepted the invitation of the Fayette County Medical Society to hold its annual meeting in Lexington, September 18-20. Arrangements have recently been made whereby the state medical association has been given space in the annex of the state board of health building, Louisville, to house library and other records of the association.

LOUISIANA

Blood Bank at Charity Hospital.—Dr. John Adriani has been named in charge of a blood and plasma bank now being developed at Charity Hospital, New Orleans. According to the *Bulletin* of the Orleans Parish Medical Society, the bank will consolidate the small independent banks previously managed by the various services throughout the hospital. The facilities, which will be housed in converted operating and auxiliary rooms in the east wing of the twelfth floor, will consist of processing and storage rooms, sterilizing rooms, laboratories, one of which will be set aside for use at night, and washing rooms. Facilities will be provided in converted clinics in the west wing of the first floor for donors, 18 to 20 of whom may be bled at one time. Provision has been made in these facilities for physical examinations when these prove necessary, and provision has also been made for donors who may wish to rest after their blood has been drawn. At first the bank will store only whole blood and liquid plasma. Later, as it expands, plasma will probably be frozen, and still later it may be dried. The bank will be operated on the "debit-credit" system. Calls will be met from built-up stores, the donation to be replaced later by donations from relatives or friends of the patient. Donor sources throughout the state will be tapped by means of a mobile unit, for which the American Legion and its auxiliary have contributed \$2,500. After processing at Charity Hospital, a proportion of the plasma will be returned to the community from which it was taken. The bulletin intimates that eventually the new bank will be the largest in the South, forming a reserve for the entire state.

MASSACHUSETTS

Foundation for Experimental Biology Incorporated.—The Worcester Foundation for Experimental Biology at Clark University, Worcester, has recently been organized. The purpose of the organization is "to carry on investigations in the biologic sciences, including the medical sciences." Hudson Hoagland, Ph.D., on war leave from his position as professor of general physiology and director of the physiologic laboratory, Clark University, is executive director of the foundation, and Gregory G. Pincus, Sc.D., visiting professor at Clark University, is director of laboratories. Harlow Shapley, Sc.D., director of the Harvard Astronomical Observatory, Boston, is president of the board of trustees, members of which include Dr. Roy G. Hoskins, director of research of the Memorial Foundation for Neuro-Endocrine Research, Boston; William J. Crozier, Ph.D., professor of general physiology at Harvard University; Dr. William Malamud, clinical director of the Worcester State Hospital and professor of clinical psychiatry at Tufts College Medical School, Boston, and Dr. Samuel S. Gwynne, Worcester. The foundation is interested in the general physiology and biochemistry of the hormones and respiratory enzymes and their possible interrelations. It is also concerned with applications of such work to studies of psychomotor fatigue, particularly in industry, and to neuropsychiatric problems. Extensive clinical facilities for the latter work are available at

the Worcester State Hospital, where the research staff, including members of the Memorial Foundation for Neuro-Endocrine Research, are cooperating closely with the work of the foundation. The work of the new foundation is, according to Dr. Hoagland, essentially an incorporation of work which has developed over the past ten years in the Clark University physiologic laboratory and which has been almost wholly supported since 1933 by grants outside of Clark University given for the purpose by philanthropic foundations, industries and individuals. Dr. Hoagland points out that the foundation is autonomous from Clark University.

MINNESOTA

State Medical Election.—Dr. Edward L. Tuohy, Duluth, was elected president of the Minnesota State Medical Association at its recent annual meeting in Rochester. Vice presidents are Drs. Sidney A. Slater, Worthington, and J. Arnold Borgen, Rochester. Drs. Benjamin B. Souster, St. Paul, and William H. Condit, Minneapolis, are secretary and treasurer respectively. The state association awarded its distinguished service medal to Drs. Willard L. Burnap, Fergus Falls, and William F. Braasch, Rochester, for their "professional accomplishments and for service to the profession in Minnesota."

NEW HAMPSHIRE

State Medical Meeting.—The one hundred and fifty-third annual meeting of the New Hampshire Medical Society will be held at the Hotel Carpenter, Manchester, May 16, under the presidency of Dr. James W. Jameson, Concord. The speakers will be:

- Dr. Sven M. Gundersen, Hanover, Virus Pneumonia.
- Dr. Herman L. Kretschmer, Chicago, President-Elect of the American Medical Association, Diagnosis and Treatment of Cystitis in Women and Children.
- Dr. Chester S. Keefer, Boston, Penicillin.
- Dr. Harold M. Marvin, New Haven, Conn., Practical Considerations in the Diagnosis and Treatment of Heart Disease.
- Capt. Benjamin Tenney Jr. (MC), Casualties in the South Pacific.

NEW YORK

Personal.—Dr. Stockton Kimball, associate in medicine and pharmacology at the University of Buffalo School of Medicine, recently returned from a study of malaria and other tropical diseases in Costa Rica and Guatemala. Dr. Lawrence Edgar Hummel, assistant dean of the medical school and assistant professor of medicine, also made a trip to Guatemala for a similar study.

Graduate Lectures.—Dr. John G. Fred Hiss, professor of clinical medicine, Syracuse University College of Medicine, Syracuse, will deliver a graduate lecture before the Medical Society of the County of Cayuga, May 25, at the Auburn City Hospital, Auburn. The subject will be "Rheumatic Fever—Rheumatic Heart Disease." The Seneca County Medical Society will be addressed, May 18, in Waterloo, by Dr. Ellery G. Allen, Syracuse, on "General Résumé of Hematological Disorders, Including the Anemias." A series of graduate lectures will be opened on May 17 for the Medical Society of the County of Sullivan, with a talk by Dr. Philip M. Stimson, New York, on "The Early Treatment of Poliomyelitis with a Description and Evaluation of the Kenny Technics." Others in the series include:

- Dr. Donovan J. McCune, New York, Deficiency Diseases, May 24.
- Dr. Harold G. Wolff, New York, Headache, June 7.
- Dr. Ralph G. Stillman, New York, The Significance of Laboratory Tests and Methods in the Practice of Medicine, June 14.
- Dr. Joseph J. Bunim, Brooklyn, Newer Chemotherapeutic Methods, June 21.
- Dr. Norman H. Jolliffe, New York, The Relation of Vitamins to Disease, June 28.

The lectures are sponsored by the state medical society and the state department of health.

New York City

Harvey Society Lecture.—William H. Sebrell Jr., surgeon, U. S. Public Health Service, chief, division of chemotherapy, National Institute of Health, will deliver the eighth Harvey Society Lecture of the current series at the New York Academy of Medicine, May 18. His subject will be "The Relation Between Sulfonamide Drugs and Vitamin Deficiencies."

Dr. Loyal Davis to Speak at Cornell.—The annual Walter L. Niles Memorial Lecture will be delivered on May 18 at the Cornell University Medical College Auditorium by Dr. Loyal Davis, professor of surgery at Northwestern University Medical School, Chicago. His subject will be "Experiences as Consultant in Neurological Surgery in European Theater of Operations." The lecture is sponsored by the Tau Chapter of Nu Sigma Nu fraternity and honors the late Dr. Walter L. Niles, former dean of Cornell.

Boric Acid Solution to Be Colored Pink.—The New York State Department of Health has adopted a regulation making it mandatory for all boric acid solution to be colored pink through the use of vegetable dye. In Washington, D. C., a bill (H. R. 4708) was introduced in Congress April 28 asking for passage of a law requiring poison to be marked on the labels of boric acid containers. These actions have been prompted by the recent deaths of infants in a Connecticut hospital, which occurred when boric acid was in error included in the babies' formulas.

Mayor Offers Health Plan.—Mayor Fiorello La Guardia, in a broadcast April 30 over station WYNC, proposed a plan of health insurance "open to all who live or work within the city of New York" to provide "everything necessary to keep one from getting sick and everything medically available to cure one who is sick." It was stated that the plan would be put into operation "not later than the first of the year." Newspapers reported that the plan, as proposed, would be broader than any medical plan now in effect in the United States, the services to include costs at home, physicians' offices and hospitals, and would emphasize "preventive" check-ups. It would be managed by a nonprofit corporation, to be formed within the next two months under state law, with a "nonpolitical" board of directors and a medical board responsible for quality of treatment, research and ethics of the participating physicians. It was stated that \$250,000 would be necessary to start the enterprise and that it was hoped to raise this sum privately. All physicians would be invited to take part, but, if the county medical societies reject the plan, it was stated that the mayor promised to go ahead with a "closed panel" enrolling its own doctors and relying heavily on physicians returning from the armed forces. Present health and hospital insurance plans would be invited to merge into the new organization. In a statement to the press, Dr. William B. Rawls, chairman of the economic committee of the five county medical societies in New York, is reported to have intimated that the societies did not know of the proposed plan until the broadcast. He is reported to have said that "the county groups had approved a \$2,500 limit for lower income groups," while the new plan would cover all persons earning up to \$5,000 a year. Membership would be by groups such as companies, unions or fraternal organizations. Premiums would approximate 4 per cent of an employee's wages, at least half to be paid by the employer, this portion being deductible from federal and state taxes and not subject to National War Labor Board wage veto. The mayor proposed that the city pay half the cost for its employees, provided the board of estimate and council approved. It was stated that the mayor did not present his plan as "complete or immutable," preferring, he said, "a national compulsory system" such as the long pending Wagner-Murray-Dingell social security extension bill, which he called "the outstanding legislative proposal before the American Congress." In his recent budget message to the board of estimate, the mayor reported that he was disappointed not to be able to inaugurate a citywide health insurance plan. In expressing his disappointment at that time, the mayor said:

I hope that before long a definite plan will be completed. I must express at this time sad disappointment in the attitude of organized medicine. We must have greater cooperation from organized medicine. No one must be permitted for selfish reasons to hold it back. The fine, splendid, experienced, skilful, public spirited medical men who are in the armed forces, with their colleagues here, particularly the younger ones, will have a lot to say about it when they come home. We depend on them.

Louis Pink, president of the Associated Hospital Service, which has 1,500,000 subscribers to the so-called 3 cents a day plan to pay certain hospital costs alone, called the mayor's proposal "the most significant experiment of its kind in the United States" and stated that his group would "do everything possible to help the mayor and the medical profession and existing medical plans to work out and put into operation a comprehensive medical plan for this area." David M. Heyman, vice chairman of the mayor's committee on medical care, which has been studying the project since April 22, 1943, stated that the physicians would find "a new source of income" through employer payments and predicted that the plan would reduce absenteeism.

OHIO

Dr. Torald Sollmann Retires.—Dr. Torald H. Sollmann, associated with Western Reserve University School of Medicine, Cleveland, since 1895, will retire as dean of the medical school and head of the department of pharmacology on June 30. Dr. Sollmann reached the retirement age February 10. He will continue to pursue his research in pharmacology, a large part of which he was forced to drop when he became dean of the medical school in 1928. Dr. Sollmann graduated at Western Reserve in 1896. He has been a member of the faculty since 1895, teaching as demonstrator in physiology. In 1898 he became lecturer in pharmacology and is credited with

the subsequent development of the department at the medical school. He later became assistant professor of pharmacology and materia medica and in 1904 was named to a full professorship. He is chairman of the Council on Pharmacy and Chemistry of the American Medical Association. Dr. Sollmann will be succeeded as professor and head of the department of pharmacology by Dr. Arnold D. Welch. His successor as dean will be announced later. Dr. Welch received his doctor of philosophy degree at the University of Toronto in 1934 and his medical degree at Washington University School of Medicine, St. Louis, in 1939. He became director of pharmacology research for Sharp and Dohme in 1940 and director of research in 1943.

PENNSYLVANIA

Personal.—Dr. John S. Niles Sr. has resigned as chief of staff of the Carbondale General Hospital, a position he has held for fifty-five years, the *Scranton Tribune* reported on April 7.—Dr. Charles J. Hemminger, Somerset, was reappointed March 8 a member of the state board of medical education and licensure for a term of four years.—Dr. George L. Stephan, Atglen, has been appointed a member of the Parkersburg Board of Health.

Philadelphia

Bequest to University.—The late Dr. Charles W. Burr, formerly professor emeritus of mental diseases, University of Pennsylvania School of Medicine, bequeathed \$200,000 to the endowment fund of the university. He also willed his library to the university, consisting of about 19,000 volumes.

Personal.—Dr. Joseph McFarland has recently returned from a lecture tour in San Jose, Costa Rica and Central America. Included among his lectures were "Fundamental Principles of Inflammation" and "Probable Causes of Tumors." Dr. McFarland's daughter, Dr. Helen McFarland Woodbridge, also lectured on "Bacteriology of Inflammation."—Dr. Ignatius S. Hneleski, formerly chief resident at the Philadelphia General Hospital, has been named superintendent.

County Society Demands Revocation of Schireson's License.—A recent two weeks investigation conducted by the state board of medical registration and licensure meant "nothing at all," according to evidence presented to Governor Martin by Attorney General James H. Duff, newspapers reported April 27. The evidence is reported to show that the board's senior investigator, Edward R. Williams, not only had failed to gather evidence against Dr. Henry P. Schireson but, according to witnesses against the plastic surgeon, attempted to intimidate them. The *Philadelphia Record* has been publishing an exposé of Schireson's activities and the Philadelphia County Medical Society has been demanding the revocation of Schireson's license for the last eleven years. The *Record*, in commenting on the recent investigation by the state board, stated that the board presented as its excuse that it had not received effective cooperation from the attorney general's office when Schireson employed lawyers to fight action. Schireson was once involved in a notorious damage suit in which he was ordered to pay the complainant \$40,000. Since then his licenses to practice medicine in various states have been revoked. Dr. Irvin D. Metzger, Pittsburgh, a member of the board since 1915, has resigned.

SOUTH DAKOTA

State Medical Meeting.—The South Dakota State Medical Association will hold its annual session in Huron, May 21-23, under the presidency of Dr. Joseph C. Ohlmacher, Vermillion. Among the speakers on the program will be:

- Dr. Albert V. Stoesser, Minneapolis, Is Vaccine Therapy of Value in Allergies of Children?
- Dr. Frederic E. B. Foley, St. Paul, Hydronephrosis—Diagnosis and Treatment.
- Dr. John S. Lundy, Rochester, Minn., Comments on the Usefulness of Various Anesthetic Agents.
- Dr. Harry A. Oberhelman, Chicago, Chronic Mastitis in Its Relation to Cancer of the Breast.
- Dr. Paul H. Holinger, Chicago, Indications for Bronchoscopy in Pulmonary Disease.
- Dr. Calvin C. Applewhite, Kansas City, Mo., Medical Leadership in Public Health.
- Dr. Charles M. Wilhelmj, Omaha, The Agenda of Postwar Medical Practice.
- Dr. William F. Braasch, Rochester, Prepayment Plans for Medical Care.
- Dr. Virgil S. Counsellor, Rochester, Hysterectomy—Selection of the Appropriate Operation for the Particular Case.
- Major George H. Stein, M. C., A Comparative Radiologic Study of Primary Atypical and Bacterial Pneumonia.
- Lieut. Col. Saul Michalover, M. C., Some Interesting Aspects of Aviation Physiology and Medicine.
- Dr. Harry E. Harvey, Lincoln, Neb., Placenta Abruptio.

One session will include a round table discussion of x-ray films, with Dr. Nelius J. Nessa, Sioux Falls, presiding and Major Stein the leader.

TENNESSEE

Dr. Schmeisser Resigns as Chief of Pathology Division.—Dr. Douglas H. Sprunt, since 1932 associate professor of pathology, Duke University School of Medicine, Durham, N. C., has been appointed chief of the division of pathology at the University of Tennessee College of Medicine, Memphis, to succeed Dr. Harry C. Schmeisser, who has held the position since 1921 and who has resigned because of ill health. Dr. Schmeisser will continue as professor of pathology.

Meharry Given Millions for Endowment.—The General Education Board of the Rockefeller Foundation recently granted \$4,300,000 to Meharry Medical College, Nashville. The sum of \$4,000,000 has been earmarked for endowment, while the \$300,000 has been classified as a contingent fund to help during the next few years while the finance committee of the board of trustees gets the endowment portion properly invested and yielding income for the college. Dr. Edward L. Turner is president of the college.

State Medical Election.—Dr. William C. Chaney, Memphis, was named president-elect of the Tennessee State Medical Association at its annual meeting in Nashville, April 13. Dr. Kyle C. Copenhaver, Knoxville, was inducted into the presidency. Other officers include Drs. Hubert P. Clemmer, Milan; Bernard H. Woodard, Spring Hill, and John Marsh Frere, Chattanooga, vice presidents, and Harrison H. Shoulters, Nashville, secretary-editor. Dr. Ernest R. Zemp, Knoxville, was elected for the twenty-first consecutive year as speaker of the association's house of delegates.

GENERAL

Meeting of Neurologists.—The American Neurological Association will hold its seventieth annual meeting at the Waldorf-Astoria in New York, May 19-20, under the presidency of Dr. Edwin G. Zabriskie, New York. Among the speakers on the program will be:

Drs. Salomon Katzenbogen, Alfred K. Baur and Anna R. Coyne, Washington, D. C., Electro-Shock Therapy: Clinical and Biochemical Studies.

Dr. Hans H. F. Reese, Madison, Wis., Multiple Sclerosis and Dicoumarin Therapy.

Dr. George D. Gammon, Philadelphia, Immediate and Early Results of Penicillin Treatment of Neurosyphilis.

Drs. Lewis J. Pollock, James G. Golseth and Alex J. Arieff, Chicago, Discontinuity of Strength Duration Curves in Muscle in Diagnosis of Peripheral Nerve Lesions.

Dr. Frederic A. Gibbs and Erna L. Gibbs, Boston, Electroencephalographic Changes with Age in Adolescent and Adult Control Subjects.

Dr. Alexander Adler, Boston, A Case of Visual Agnosia.

College of Chest Physicians.—The tenth annual meeting of the American College of Chest Physicians will be held at the Stevens Hotel, June 10-12, Chicago, under the presidency of Dr. J. Winthrop Peabody, Washington, D. C. Among speakers from other countries will be Lieut. Col. James D. Adamson, R. C. A. M. C., on "Pneumonitis" and Dr. Ovidio Garcia Rosell, Lima, Peru, "Classifications of Clinical Aspects of Tuberculosis with Regard to Teaching." Other speakers on the program will include:

Major Brian B. Blades, M. C., Segments of the Lung from the Standpoint of Surgical Procedure.

Major Walter L. Nalls, M. C., Pitfalls in the Diagnosis of Atypical Pneumonia.

Dr. Karl H. Pfuetze, Cannon Falls, Minn., Diasone in the Treatment of Pulmonary Tuberculosis (One Year's Experience).

Dr. Jose de Carvajal-Forero, New York, Roentgenography of the Soft Tissues of the Thoracic Cavity and Neck.

Dr. E. W. Alton Ochsner, New Orleans, Primary Carcinoma of the Lung.

Dr. Louis N. Katz, Chicago, Pulmonary Embolism.

Dr. Jerome R. Head, Chicago, Experiences with Monaldi Intracavitary Suction.

One feature of the meeting will be a session showing the latest developments in tuberculosis and other diseases of the chest in World War II. Among the speakers will be Major Gen. Shelley U. Marietta, M. C., Capt. Robert E. Duncan (MC), Dr. Roy A. Wolford, Herman E. Hilleboe, senior surgeon, U. S. Public Health Service, and Col. Esmond R. Long, M. C.

Mayer Cancer Award.—Dr. Alexander Lipschütz, director of the department of experimental medicine of the Chilean National Health Service at Santiago, Chile, has been chosen as the recipient of the second \$2,000 prize given by Charles L. Mayer and administered by the National Science Fund of the National Academy of Sciences. The award was offered for an outstanding contribution made in 1943 to present day knowledge of factors affecting the growth of animal cells, with particular reference to human cancer. Dr. Lipschütz was born in Riga, Latvia. He held various positions in medicine and physiology at institutions in Switzerland and Germany before going to Chile about fifteen years ago to serve at the

Catholic University at Concepcion. He has been director of the department of experimental medicine of the National Health Service since 1938. According to a release from the National Academy of Sciences, Dr. Lipschütz, together with the Chilean scientists working in his laboratory, has been studying for the past six years the fibromyomas of the uterus which can be induced in guinea pigs by the injection of certain sex hormones of the female. The growths closely resemble the fibromyomas ("fibroids") which occur in women during the childbearing period, and Dr. Lipschütz has shown that like these they dwindle and vanish when the stimulation of the sex hormones is withdrawn, as happens after the menopause in women. He and his associates have sought means to prevent the occurrence and enlargement of the growths while the hormones are still acting, and recently they have found that some other hormones from other organs have this effect, as do also certain substances synthesized by chemists. The molecular configurations responsible for the influence of the antifibromatic agents are now under investigation.

New Foundation to Develop Artificial Limbs and Orthopedic Apparatus.—The establishment of the Research Institute Foundation was recently announced. The new group is dedicated to scientific research and development in artificial limbs and orthopedic apparatus with Chester C. Haddan, 1633 Court Place, Denver 2, as chairman of the board of governors. The foundation was incorporated as a nonprofit scientific research organization by the Association of Limb Manufacturers of America. The board of governors represents members of the American Academy of Orthopaedic Surgeons, American Orthopaedic Association, Association of Limb Manufacturers of America, Office of the Surgeon General of the U. S. Army, Bureau of Medicine and Surgery of the U. S. Navy, U. S. Veterans' Administration, Disabled American Veterans and the American Federation of the Physically Handicapped. The establishment of a scientific laboratory in Detroit is in progress, according to an announcement. The foundation will be financed by contributions from interested persons or organizations, grants, bequests and donations or by allocation of state and federal funds. Any suggestions may be presented to the foundation by any person or group of persons for research and development, and any developments or devices released by the foundation shall be free to all, so long as they are used ethically for the public good and not exploited commercially. In addition to Mr. Haddan, other members of the board of governors are:

Capt. Joseph S. Barr (MC), Bureau of Medicine and Surgery, U. S. Navy.

Dr. George E. Bennett, adjunct professor of orthopedic surgery, Johns Hopkins University School of Medicine, Baltimore, president, American Academy of Science.

Dr. Harold R. Conn, Akron, Ohio, orthopedic surgeon, City Hospital, Akron and St. Thomas Hospital; surgeon-in-chief, Goodyear Tire and Rubber Company.

A. S. Hanger, Washington, D. C., vice president, Association of Limb Manufacturers of America.

Frank O. Peterson, Detroit, treasurer, Association of Limb Manufacturers.

Col. Leonard T. Peterson, M. C., Office of the Surgeon General, U. S. Army.

Millard W. Rice, Washington, D. C., National Service Director, Disabled American Veterans.

Dr. Edwin J. Rose, Washington, D. C., assistant medical director, U. S. Veterans' Administration.

Walter R. Sievers, New York, vice president, Association of Limb

Manufacturers, Washington, D. C., president, American Federation of the Physically Handicapped.

Denver, assistant professor of orthopedic surgery, University of Colorado School of Medicine; attending orthopedic surgeon, Childrens Hospital and Colorado General Hospital.

Dr. Philip D. Wilson, New York, clinical professor of orthopedic surgery, Columbia University College of Physicians and Surgeons; surgeon-in-chief, Hospital for Special Surgery; medical director, American Hospital in Britain.

Seminar on Industrial Aspects of Ophthalmology.—The National Society for the Prevention of Blindness opened a course of five lecture conferences April 26 to be conducted on the following Thursday evenings through May 25. The course is offered without charge to ophthalmologists and will cover acute need for ophthalmologists in industry; industrial eye hazards (protection equipment and its maintenance); first aid (facilities, treatment, scope, limitations and control); industrial nursing, illumination for industry, visual examination; refraction and prescription for industrial working conditions; job analysis for visual requirements, and governmental and voluntary health agencies. The lecturers include Joseph Lo Presti, assistant surgeon, who was assigned in 1943 by the U. S. Public Health Service to the National Society for the Prevention of Blindness to carry on a program in the field of industrial hygiene. A group of cooperating agencies, together with the U. S. Public Health Service, has been developing an industrial eye hygiene program with emphasis on visual job analysis. The results of the survey are to be

made available later. Thus far the work has included a study using an Ortho-Rater at the Stevens Institute, Hoboken, N. J., covering a group of 336 first term students enrolled in the drafting course. Efforts at the Visual Institute, Purdue University, Lafayette, Ind., where the Ortho-Rater was developed, were also surveyed. In addition, a comprehensive industrial visual survey was carried out in Connecticut to obtain a cross section of industrial vision practices in a typical, concentrated industrial region, to compare various methods of examination, particularly screening tests, for vision and to derive recommendations for methods of appraising and improving existing visual conditions, both of employees and of plants which may serve as a pattern to be followed throughout the country.

LATIN AMERICA

Health Activities in Latin America.—Recommendations at Pediatric Congress.—Included among recommendations approved at the second Congress of Pediatrics, held in Mexico City, March 27-31, under the auspices of the Mexican Pediatric Society, were those urging the appointment of a committee to formulate suggestions for a law controlling maternity care, the introduction of courses in child care in girls' schools, the improvement of sanitary conditions, medical treatment and methods of isolation of children with leprosy, the intensification of the Mexican campaign against intestinal parasites, the establishment of an institution for the convalescence and readjustment of children crippled by poliomyelitis, and the creation of local pediatric societies for systematic exchange of child health information. It was also recommended that Cuba be asked through the Ministry of Health and Welfare and the Mexican Anti-Tuberculosis Committee to ship cultures of its new antituberculosis vaccine to Mexico. Among those from the United States attending the congress were Dr. Irvine McQuarrie, Minneapolis, whose subjects included "The Therapeutic Use of Penicillin in the Child"; Dr. Henry F. Helinholz, Rochester, Minn., "Disturbances of the Thyroid Glands in Children"; Dr. Archibald L. Hoyne, Chicago, "Treatment of Meningitis with the Sulfonamide Drugs," and Mrs. Elisabeth Shirley Enoch, associate in public relations, U. S. Children's Bureau, Washington, D. C., "Children's Services During Wartime and the Postwar Period." At a special meeting of the Mexican Academy of Medicine Dr. Bela Schick, New York, spoke among other things on "The Cardiac Viscera."

Institute of Cardiology Opened.—The Mexico City Institute of Cardiology was officially opened on April 18 as a "center of studies for specialists from all the Americas." The institute plans to provide hospitalization for patients requiring it, to furnish physicians with opportunities for research, to train general practitioners for a career in cardiology and to offer social assistance to needy patients. Accommodating 120 beds, the institute will also conduct an outpatient service. Fees will be adjusted to meet the need of the patient. For the patient a program of rehabilitation will be offered to help manual workers to accommodate themselves to sedentary occupation. For the student physician the institute will demand that its investigators abandon their private practice or other obligations in order that they may concentrate on their studies; tuition, board, lodging, laundry and a small salary will be allowed, this privilege to be extended to foreign as well as to native practitioners. At the expiration of the eighteen month course some investigators will be allowed to continue their work on the same terms. A feature of the opening of the institute was a Pan American Congress on Cardiology, April 19-23, and the organization of the Pan American Heart Association. Dr. Ignacio Chavez, who was instrumental in founding the institute of cardiology, was chosen president and secretary-treasurer of the heart association.

Tuberculosis Conference.—The first National Tuberculosis Conference will be held in Mexico City, July 23-29, under the auspices of the Mexican Society for the Study of Tuberculosis and the Mexican Ministry of Health and Welfare. Dr. Miguel Jimenez will preside at the meeting.

Medical Care for Mica Workers.—The Institute of Inter-American Affairs, an agency of the Office of the Coordinator of Inter-American Affairs, and the United States Foreign Economic Administration are cooperating with the Brazilian government in providing medical care for mica miners in the Rio Doce Valley. The local health agency of the Servico Especial de Saude Publica in Brazil is cooperating in the attempt to provide basic medical care and sanitary facilities; three physicians and five sanitary inspectors have established headquarters at Governador Valadores, according to the *Inter-American Economic News*.

Government Services

Fellowships in Health Education

Fellowships in graduate health education leading to a master of science degree in public health are being offered by the U. S. Public Health Service through funds made available by the W. K. Kellogg Foundation. The training provides twelve months in public health education and includes nine months in academic work in public health and public health education and three months of supervised field experience. They provide a stipend of \$100 per month for twelve months, full tuition and travel for field experience. Candidates must pay their travel to and from the university at the beginning and end of training. Fellowships, which will be available for the fall college quarter of 1944, are extended this time only to qualified American women between the ages of 19 and 40. Men cannot be considered because of the demand for manpower for military service. Qualifications should include a bachelor of science degree or its equivalent from a recognized college or university. Additional information may be obtained from the Surgeon General, U. S. Public Health Service, Washington 14, D. C. Applications must be accompanied by transcript of college credits and a small photograph and must be in the office of the surgeon general not later than August 1.

New Distribution of Lanham Funds

On April 11 the Federal Works Agency announced that about \$10,000,000 had been allocated for 287 war public works and services and child care projects throughout the country. Of the \$115,000,000 recently appropriated by Congress for wartime community facilities under the Lanham act more than \$9,000,000 had been made available for the 287 previously approved projects. All or part of the federal assistance for these projects had been deferred pending the availability of additional funds for the Federal Works Agency programs. The new allotments included \$5,487,659 in federal funds for 57 war public works projects, \$1,248,111 in federal contributions for 72 war public services projects, and \$2,934,909 for 158 projects for assistance in the maintenance and operation of child care facilities. Included among the war public works projects are health centers in Elizabeth City, N. C., and Lewisburg, Tenn., and health center alterations in Parsons, Kan. Others will be a hospital addition in Pasadena, Calif., a venereal disease clinic in Atlanta, Ga., hospital facilities in Kansas City, Kan., and isolation hospital facilities in Portland, Ore. Included in the war public services are venereal disease hospitals in Indianapolis, Minneapolis, Rush Springs, Okla., Richmond, Va., and Hamilton, Davidson and Shelby counties, Tenn., and a hospital in Jacksonville, N. C. The funds providing for child care facilities will be expended in thirty-nine states.

Occupational Therapists Needed

The U. S. Civil Service Commission, Washington, D. C., announces a number of positions available for occupational therapists. In greatest demand are experienced graduates of accredited occupational therapy schools. Experience should be in hospitals acceptable to the American Medical Association. For some positions, however, college training in psychology and in arts and crafts or trades and industries, or experience as a junior aide in veterans' hospitals, may be substituted for training in occupational therapy schools. Other positions will be filled by inexperienced graduates of occupational therapy schools. The salary range of these positions is from \$1,970 to \$2,433 a year, including overtime pay. Those appointed at \$1,970 will be trainees for a period of eighteen months; those appointed at \$2,190 and \$2,433 will administer occupational therapy under medical and general supervision, in army and veterans' hospitals. There are no age limits and no written tests, but applicants must be physically capable of performing the duties involved. Persons now using their highest skills in war work should not apply. Federal appointments are made in accordance with War Manpower Commission policies and employment stabilization programs. Additional information may be obtained from first and second class post offices or from the U. S. Civil Service Commission, Washington 25, D. C.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 8, 1944.

The Evil of Fancy Names for Drugs

One of the great difficulties of the physician in the treatment of disease is the bewildering number of new remedies. Some of them are real advances, but many belie the claims made for them and after a career of wide but brief popularity disappear. Another difficulty created for the physician is the use of different proprietary names for the same remedy or for slightly different substances with the same action. Manufacturing chemists are held responsible for this evil, which, though widespread and long existing, seemed to be largely ignored. In the *British Medical Journal*, February 26, page 307, a correspondent, Dr. Robert C. Taylor, pointed out that there are already signs that manufacturing chemists are planning to exploit or "develop" (in the trade sense) the sulfonamides, as they have in the past exploited the barbiturates. At present, war conditions hinder this tendency, but it seems certain that, on the restoration of peace, exploitation will increase unless some control is instituted. The process of "development" is only too familiar: The firm's chemist produces a slight variation of an existing compound (an easy matter in organic chemistry). Then an inadequate clinical trial is staged—often by the offer of free supplies. Next the compound is given a fancy name and is boosted by every device of advertising, and finally the "sales resistance" of the practitioner perforce collapses. Dr. Taylor therefore asks that action be taken before a bewildering array of good, bad and indifferent remedies is thrust upon us. Either the Ministry of Health, the Medical Research Council or the Pharmacopeia Commission, he says, should institute a measure of control.

Skin Fitness for Tropical Service

The *Army Medical Department Bulletin* describes the skin as the organ most directly exposed to the strains of a tropical climate—a fact emphasized by the news that more than a third of the men invalided home from a particular area had to leave the tropics because of skin diseases. Equally important is the fact that one fourth of these men had histories and signs of skin disability which ought to have prevented them from being sent to the tropics. Recent experience in the Middle East has shown that men with bright red hair and very fair, highly freckled skins, without pigment between the freckles, soon become afflicted with "desert sore" no matter what care is taken to acclimatize them. They thus differ from men with ordinary fair skin, who, though liable to the same lesions, can be acclimatized if due care is taken. Men are unsuitable for tropical service who have definite histories and signs of chronic or recurrent skin diseases such as blepharitis, boils, seborrheic dermatitis, dermatitis herpetiformis, hyperhidrosis, severe ichthyosis, lupus erythematosus, psoriasis (unless very mild), rosacea, sycosis barbae, prurigo, recurrent urticaria, lichenification (especially scrotal) and all forms of dermatitis due to light sensitization. Cheiropompholyx is a disqualification if no cause, such as a fungus, can be found. Chronic indurated acne unfits a man for tropical service, but ordinary simple acne improves in hot climates. The same holds true for mild ichthyosis. It is emphasized that it is the fact of chronic or recurrent attacks of the disease in question that is evidence of the disability; a single attack of boils or sycosis with complete recovery should not prevent a man from going to the tropics.

Besides preventing unsuitable men from being sent to the tropics, medical officers can give advice to increase skin comfort in tropical climates. Many men leave this country with latent tinea of the feet, which soon becomes troublesome in warm climates, especially on troop ships. It is a simple and useful practice for men on troopships to dust the feet, groins and axillas daily with a mildly antiseptic powder.

Checking Gases Administered by Anesthetists

The Medical Defense Union, which was formed for the purpose of defending members of the medical profession against whom actions at law are brought for alleged malpractice, has issued a warning to anesthetists. In conjunction with the Society of Anesthetists the union is reviewing certain difficulties which anesthetists have in recognizing the gases delivered from anesthetic apparatus. All anesthetists are urged to satisfy themselves personally about the actual gas about to be administered to a patient and not to rely on the assurance of others. The factor of personal responsibility should never be absent from the mind of the anesthetist. Before administering any gas or any mixture of gases he should check his apparatus and cylinders completely to satisfy himself beyond reasonable doubt of the character of the gaseous anesthetic he is about to administer. A full report by these two bodies on how to obviate errors of wrongful coupling or misidentification of gases used will be made on completion of the investigations.

The Army Has a Use for the Neurotic

The *Army Medical Department Bulletin* calls attention to the "Annexure Scheme," introduced in 1941, which has resulted in many neurotic persons finding suitable employment in the army instead of being returned to civil life. A valuable saving in manpower has thus been made possible. Under the scheme, military patients in hospitals for neurosis who would probably become ineffective if returned to their original units are given special posts. The neurotic soldier's physical and mental condition, ability and previous experience are all considered by experts, and great pains are taken to find the right job for him, usually with a static unit in Britain. In posting such a man to a selected duty, the medical officer assumes important responsibilities.

The majority of these specially posted neurotic soldiers have proved to be efficient when put in a suitable environment and given the right work. The guiding principles are genuine interest combined with sympathetic but firm treatment. The first weeks of the new posting are often critical. The man may report sick or feel insecure and friendless. It is for the medical officer to relieve that feeling, not by coddling the man or protecting him from all regimental duties, but by encouraging him in the belief that his duties are important and within his powers. Under no circumstances should men be employed in duties other than those recommended.

Marriages

LOUIS SCHWARTZ, Tupper Lake, N. Y., to Miss Julia F. Déchand of North Ashford, Conn., January 31.

HENRY GUNTER HODO JR. to Miss Naomi Brock, both of Birmingham, Ala., March 15.

ROSARIO A. FISICHELLA to Miss Theresa Loretta Chirico, both of Brooklyn, April 16.

LOUIS S. CONSTINE JR. to Miss Nancy Jane Meyer, both of San Francisco, March 19.

SALVATORE CUCINOTTA to Miss Helen Murrin, both of Philadelphia, February 21.

Deaths

Virgil Earl Simpson ☉ Louisville, member of the House of Delegates of the American Medical Association, died May 3, aged 68.

Dr. Simpson was born in Jefferson County, Ky., May 11, 1875. He studied in the common school and the Danville normal school, graduating at the Hospital College of Medicine in 1900. For a time Dr. Simpson had been teacher in the local high school. He joined the faculty of the University of Louisville Medical Department as instructor in pharmacology and therapeutics in 1902. He subsequently served as associate professor, professor of materia medica, therapeutics and hygiene and professor of clinical medicine. He was a member of the staff of the Louisville City Hospital, serving as consultant to Norton Memorial and St. Joseph's infirmaries, Baptist, St. Anthony's hospitals. A member of the founder's group of the American Board of Internal Medicine, he had also been certified by it in gastroenterology.

Dr. Simpson had served in the House of Delegates of the American Medical Association in 1913 and again from 1932 to 1943; he would have served at the 1944 session. He had been a member of the American Heart Association, American Gastroenterological Association, Southern Medical Association and the Kentucky State Medical Association. He was a fellow of the American Medical Association and American College of Physicians and a member of the Revision Committee of the U. S. Pharmacopeia.

A captain in the medical corps of the Kentucky National Guard from 1911 to 1917, Dr. Simpson held the rank of major in the medical corps of the U. S. Army, 1918-1919, during which period he served as commanding officer of Camp Hospital number 8 at Montigny le Roi, France.

Cassius Clay Rogers ☉ Chicago; Rush Medical College, Chicago, 1896; formerly professor and head of the department of surgery at the Chicago College of Medicine and Surgery, professor and head of the department of physical diagnosis at the Chicago College of Dental Surgery and associate professor of surgery at the University of Illinois College of Medicine; a major and surgeon with the first Illinois Reserve Militia and member of the exemption board number 39 of the Selective Service during World War I; formerly a member of the hospital corps of the second regiment, Illinois National Guard; appointed a first lieutenant in the medical reserve corps of the U. S. Army in February 1911 and resigned in 1915; director and chairman of the staff and vice president, Garfield Park Community Hospital; on the staff of the University Hospital; fellow of the American College of Surgeons; member of the Chicago Surgical Society, Association of Military Surgeons of the United States, Chicago Historical Society and the Chicago Athletic Club; life member of the Art Institute and the Field Museum; received the honorary degree of master of arts in 1908 and doctor of laws in 1914 from Valparaiso University; died in the Grant Hospital April 21, aged 74, of heart disease.

Frederick Wilkinson Colburn, Boston; Boston University School of Medicine, 1897; member of the Massachusetts Medical Society; since 1934 professor emeritus of otology at his alma mater, where he had been assistant in otology, instructor in otology, lecturer in otology, associate professor of otology, associate professor of clinical otology and professor of otology; fellow of the American College of Surgeons; assistant aural surgeon in 1904 at the Massachusetts Homeopathic Hospital and later aural surgeon; consulting aural surgeon for many years and formerly chief aural surgeon at the Massachusetts Memorial Hospitals; during World War I secretary of the medical advisory board 41 B; died April 9, aged 73, of cerebral hemorrhage.

Alexander Heron Davisson ☉ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1892; past president of the Philadelphia Association of Medical Examiners; a fellow of the College of Physicians of Philadelphia; for many years examining physician for the Metropolitan Life Insurance Company; a captain in the medical corps of the U. S. Army during World War I; served as secretary of the Society of the Medical Alumni of the University of Pennsylvania; formerly on the staff of Rush Hospital for Consumption and Allied Diseases; died in the United States Naval Hospital February 29, aged 74, of coronary thrombosis.

Ernest Archibald Campbell, Gallup, N. M.; University and Bellevue Hospital Medical College, New York, 1903; member of the New Mexico Medical Society; formerly professor of clinical surgery at the New York Post-Graduate

Medical School and Hospital, Columbia University, New York; served in France during World War I; for many years medical officer of the 104th field artillery, New York National Guard; formerly attending surgeon at the New York Post-Graduate Medical School and Hospital and the Misericordia Hospital, New York; on the staff of the Zuni Indian Hospital, Black Rock; died April 19, aged 64.

Hulett Hall Askew ☉ Atlanta, Ga.; Emory University School of Medicine, Atlanta, 1918; served as vice president of the Medical Association of Georgia and as secretary and treasurer of the Fifth District Medical Society; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; associate fellow of the American Proctologic Society; team physician for the Georgia "Tech" Yellow Jackets; proctologist, Piedmont Hospital, Grady Hospital, Emory University Hospital, Georgia Baptist Hospital and the Crawford W. Long Memorial Hospital, where he died February 20, aged 51, of coronary thrombosis.

Jerry D. Adkins, Williamsburg, Ky.; Hospital College of Medicine, Louisville, 1891; at one time served as postmaster, and Whitley County school teacher; for many years surgeon for the Louisville and Nashville Railroad; died February 22, aged 81, of pneumonia.

Wesley Willis Beauchamp, Lima, Ohio; Starling Medical College, Columbus, 1895; member of the Ohio State Medical Association; first president of the old Lima Medical Society and a past president of the Academy of Medicine of Lima and Allen County; past president and councilor of the Northern Tri-State Medical Association; on the staff of St. Rita's Hospital and honorary member on the staff of the Lima Memorial Hospital, where he died February 26, aged 80, of myocarditis.

John Claude Bertram, Jamestown, Tenn.; University of Tennessee College of Medicine, Memphis, 1918; member of the Tennessee State Medical Association; served in the medical corps of the U. S. Navy during World War I; died February 1, aged 52.

Robert Garnett Bledsoe, Locustgrove, Va.; University College of Medicine, Richmond, 1896; member of the Medical Society of Virginia; died in the Mary Washington Hospital, Fredericksburg, February 2, aged 75.

John Frederick Bolton ☉ Tulsa, Okla.; Washington University School of Medicine, St. Louis, 1904; member of the chamber of commerce of Tulsa; on the staff of St. John's Hospital, where he died March 27, aged 64, of coronary thrombosis.

Robert Taylor Brown, Millbury, Mass.; Kansas City University of Physicians and Surgeons, 1936; served as a first lieutenant in the medical corps, Army of the United States; died in Worcester January 12, aged 37.

Robert Columbus Bruce ☉ Greenville, S. C.; Vanderbilt University School of Medicine, Nashville, Tenn., 1910; past president of the South Carolina Medical Association and councilor of the Fourth District; past president and secretary of the Greenville County Medical Society; chairman of the city health department; on the staffs of the Greenville General and St. Francis hospitals; died April 9, aged 67, of cerebral hemorrhage, hypertension and myocarditis.

William Campbell ☉ Valley City, N. D.; University of Manitoba Faculty of Medicine, Winnipeg, Man., Canada, 1927; diplomate of the National Board of Medical Examiners; served with the Canadian forces overseas during World War I; formerly chairman of the Barnes County chapter of the American Red Cross; on the staff of the Mercy Hospital; died February 21, aged 46, of carcinoma of the rectum.

Howard Damon Chapman, Auburn, N. Y.; Syracuse University College of Medicine, 1902; member of the Medical Society of the State of New York; examining physician for draft board number 489; on the staffs of the Mercy and Auburn City hospitals; died February 22, aged 73, of chronic myocarditis and coronary thrombosis.

William Jesse Chapman, Doddsville, Miss.; University of Nashville (Tenn.) Medical Department, 1901; died in the Baptist Memorial Hospital, Memphis, Tenn., February 1, aged 64.

Alcee M. Charlet, Belle Alliance, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1891; member of the Louisiana State Medical Society; died February 11, aged 73, of coronary occlusion.

Lawrence Milton Chase, North Carver, Mass.; Tufts College Medical School, Boston, 1904; member of the Massachusetts Medical Society; died February 8, aged 60.

Claude C. Chick, Hood River, Ore.; American Medical College, Indianapolis, 1897; formerly secretary of the Mid-Columbia Medical Society; served as county and city health officer; died February 26, aged 68, of heart disease.

John Holden Clancey, Naperville, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1897; for forty-three years house physician for St. Joseph Orphanage at Lisle; on the staff of St. Charles Hospital, Aurora, where he died February 18, aged 78, of cerebral hemorrhage.

Willis Earl Clarke, Boston; Tufts College Medical School, Boston, 1912; member of the Massachusetts Medical Society; served as a first lieutenant in the medical corps of the U. S. Army during World War I; instructor in otolaryngology at his alma mater; on the staff of Cambridge City Hospital, Cambridge, Mass., and a lecturer for many years at the Boston Dispensary; died in the Carney Hospital February 23, aged 56.

Edward J. Cook, Baltimore; Southern Homeopathic Medical College, Baltimore, 1907; on the visiting staffs of the Bon Secours and St. Joseph's hospitals; died February 6, aged 59, of coronary thrombosis.

William Marshall Cunningham, Cumberland Furnace, Tenn.; University of Tennessee Medical Department, Nashville, 1910; died February 24, aged 56, of hypertension.

Carl Eduard Curdts @ Oakland, Calif.; College of Physicians and Surgeons of San Francisco, 1900; served during World War I; major, medical reserve corps, U. S. Army, not on active duty; for forty-one years county jail physician; staff member of the Merritt and Providence hospitals; died February 27, aged 68, of cerebral hemorrhage and arteriosclerosis.

Frank Brannon DeWitt, Santa Cruz, Calif.; University of Tennessee Medical Department, Nashville, 1899; served during the Spanish-American War and World War I; on the staffs of various Veteran Administration facilities; died in February, aged 70.

Martha Cleveland Dibble, Kansas City, Mo.; Woman's Medical College, Chicago, 1885; member of the American Association of University Women; died February 6, aged 98, of chronic myocarditis.

Maurice Francis Dwyer @ Seattle; St. Louis University School of Medicine, 1914; specialist certified by the American Board of Radiology, Inc.; member of the Radiological Society of North America, Inc., and the American College of Radiology; fellow of the American College of Physicians; radiologist, Mason Clinic and the Virginia Mason Hospital, where he died February 28, aged 54, of hypertensive cardiovascular disease and cerebral hemorrhage.

Christian Johan Engelson, Brookings, S. D.; Denver and Gross College of Medicine, 1905; member of the South Dakota State Medical Association; died in the Municipal Hospital January 18, aged 83, of carcinoma.

Abraham Julius Epstein, New York; University and Bellevue Hospital Medical College, New York, 1914; member of the Medical Society of the State of New York; on the staff of the Lincoln Hospital; died February 10, aged 59, of pneumonia.

Albert F. Erb, Clarence, N. Y.; University of Buffalo School of Medicine, 1890; died in Cleveland Heights, Ohio, February 28, aged 95, of cerebral hemorrhage.

Gaetano Faillace @ Boston; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1903; in 1920 decorated by the Italian government for outstanding professional services among Italians and Italo-Americans in Boston and New England; died February 19, aged 71, of cerebral thrombosis and arteriosclerosis.

John Henry Fallon @ Schenectady, N. Y.; Albany Medical College, Albany, 1897; city physician; died in the Ellis Hospital February 28, aged 67, of coronary occlusion.

Floyd Emerson Fielding, Peoria, Ill.; University of Louisville (Ky.) School of Medicine, 1926; formerly health officer of Bloomington; died in the John C. Proctor Hospital February 19, aged 42, of pneumonia.

J. Delbert Foor, Terre Haute, Ind.; Medical College of Indiana, Indianapolis, 1900; formerly a member of the state legislature; died February 4, aged 72.

George Woodson Gaines @ Tallulah, La.; University of Tennessee Medical Department, Nashville, 1888; Bellevue Hospital Medical College, New York, 1890; died in Vicksburg, Miss., February 27, aged 81, of uremia due to influenza.

James Garcia, Del Norte, Colo.; University of Colorado School of Medicine, Boulder, 1907; member of the Colorado State Medical Society; on the staff of St. Joseph's Hospital and Sanitarium; died February 20, aged 70, of heart disease.

Joseph George @ Dows, Iowa; Rush Medical College, Chicago, 1895; died February 28, aged 72, of chronic nephritis and cerebral hemorrhage.

Charles Erastus Green, Brooklyn; Baltimore University School of Medicine, 1901; Albany Medical College, Albany, 1905; died February 18, aged 67.

George F. Hannah, Maryville, Tenn.; Tennessee Medical College, Knoxville, 1899; died in February, aged 67.

Amy G. Bowen Hittell, Pacific Grove, Calif.; Hahnemann Medical College, San Francisco, 1886; College of Physicians and Surgeons, Boston, 1894; died in the Wheeler Hospital, Gilroy, February 10, aged 79.

Joseph Davis Horton, Plevna, Kan.; Hospital College of Medicine, Louisville, Ky., 1893; member of the Kansas Medical Society; served on the city council and board of education; on the visiting staff of the Grace Hospital, Hutchinson; died February 14, aged 77, of coronary arteriosclerosis.

Elza Lee Johnston, Concordia, Mo.; University Medical College of Kansas City, Mo., 1911; member of the Missouri State Medical Association; past president and secretary-treasurer of the Lafayette County Medical Society; a lieutenant in the medical corps of the U. S. Army during World War I; served as coroner of Lafayette County; died February 24, aged 59, of cerebral hemorrhage.

William Humphrey Johnston, Collins, Ohio; Western Reserve University Medical Department, Cleveland, 1889; served as a member and president of the Townsend township district school board; died in Norwalk January 26, aged 77, of chronic myocarditis, chronic valvular disease and aortic insufficiency.

Jacob N. Lane, Tulsa, Okla.; Chattanooga (Tenn.) Medical College, 1905; died February 7, aged 65.

Joseph McChesney, Portland, Ore.; College of Physicians and Surgeons, New York, 1881; died in the Good Samaritan Hospital February 20, aged 85, of coronary thrombosis.

Ambrose Virgil McRee, Mayfield, Ky.; Illinois Medical College, Chicago, 1900; died in Mena, Ark., February 28, aged 82, of chronic myocarditis and bronchopneumonia.

George P. Maxwell, San Benito, Texas; Ohio Medical University, Columbus, 1898; died January 20, aged 82.

Caspar Morris, Haverford, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1878; member of the Medical Society of the State of Pennsylvania; formerly on the staffs of the Pennsylvania Hospital and Hospital of the Protestant Episcopal Church, Philadelphia; for many years chief medical examiner for the Philadelphia and Reading Railway; died February 29, aged 86.

William Russell Munson, Westport, Conn.; Baltimore University School of Medicine, 1892; member of the Connecticut State Medical Society; for many years health officer of Westport; on the staff of the Norwalk General Hospital, Norwalk; at one time assistant superintendent of the Westport Sanitarium; died in Bridgeport February 17, aged 78.

Dan Royall Murchison @ Dallas, Texas; University of Virginia Department of Medicine, Charlottesville, 1911; on the staff of the Medical Arts Hospital; medical director of the Great National Life Insurance Company; died February 16, aged 56, of coronary occlusion.

William Briggs Nichols, Philadelphia; Medical College of Virginia, Richmond, 1895; died February 28, aged 71, of cardiorenal disease.

John Overton @ Nashville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1905; since 1927 health officer of Nashville; at one time assistant demonstrator of anatomy and assistant to chair of gynecology at his alma mater; formerly physician at the state prison and in the service of the U. S. government at Manila and Shanghai; died in the Nashville General Hospital February 26, aged 63.

Anna Mary Chipman Palmer, Milton, Mass.; Boston University School of Medicine, 1888; member of the Massachusetts Medical Society and the American Society for the Control of Cancer; died in the Hahnemann Hospital, Boston, February 11, aged 86, of pulmonary edema following cerebellar thrombosis.

George William Puerner, Buffalo; University of Buffalo School of Medicine, 1907; died in the Edward J. Meyer Memorial Hospital January 16, aged 62, of pulmonary tuberculosis.

Harry Reath Ross ☉ Topeka, Kan.; Medico-Chirurgical College of Kansas City, Mo., 1900; medical consultant and for many years served as director of the division of child hygiene for the Kansas State Board of Health; formerly health officer of Junction City and Geary County; served on the staff of the Sterling Hospital, Sterling; died suddenly April 10, aged 74, of coronary thrombosis.

Louis Irwin Schulman ☉ Pittsburgh; University of Pittsburgh School of Medicine, 1925; senior assistant, department of metabolism, Montefiore Hospital; died February 2, aged 42, of wounds received when shot by a patient.

Adele E. Sheplar, New York; Woman's Medical College of Pennsylvania, Philadelphia, 1909; member of the Society of American Bacteriologists; assistant professor of bacteriology at the New York Post-Graduate Medical School, Columbia University; associate attending bacteriologist at the New York Post-Graduate Hospital, where she died February 10, aged 60.

William Irvin Simpson, Los Angeles; Rush Medical College, Chicago, 1899; died February 22, aged 70, of cerebral hemorrhage.

Duncan Sinclair, Buffalo; Victoria University Medical Department, Coburg, Ont., Canada, 1887; formerly member of the board of health of North Tonawanda, N. Y.; died February 16, aged 81, of cerebral hemorrhage.

Charles Robert Slater, Erlanger, Ky.; Medical College of Ohio, Cincinnati, 1881; member of the Kentucky State Medical Association; for many years member of the county board of health and surgeon for the Southern Railroad; died in Tampa, Fla., February 5, aged 83, of Adams-Stokes' syncope, complete heart block and coronary heart disease.

Frank Thomas Spellissy ☉ Marlboro, Mass.; Tufts College Medical School, Boston, 1919; on the staff of the Marlborough Hospital; died February 4, aged 48, of coronary thrombosis.

S. Walter Staley, Rocky Mount, N. C.; Medical College of the State of South Carolina, Charleston, 1901; member of the North Carolina Medical Association; on the staff of the Park View Hospital, where he died February 11, aged 70, of pneumonia.

Thomas Stark ☉ Thibodaux, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1891; formerly a druggist; sheriff of La Fourche Parish; served as coroner; at one time a member and later president of the parish school board; died February 10, aged 78.

Herman Ernest Stephen ☉ Joliet, Ill.; Northwestern University Medical School, Chicago, 1899; a member of the office of civilian defense; on the staffs of the Silver Cross Hospital and St. Joseph's Hospital, where he died February 22, aged 67, of coronary occlusion.

John P. Stober, Lexington, Ohio; Homeopathic Hospital College, Cleveland, 1889; served as village and township health officer; a charter member of the county board of health; died January 28, aged 81, of coronary infarct.

Dudley Hayden Swan, Plainville, Ind.; Hospital College of Medicine, Louisville, Ky., 1900; member of the Indiana State Medical Association; at one time taught school in Pike and Gibson counties; served for one term as Gibson County treasurer; on the staff of Daviess County Hospital, Washington, where he died February 20, aged 75, of cerebral hemorrhage.

Ormiston W. Swayze, Nevada City, Calif.; Homeopathic Hospital College, Cleveland, 1889; died in the Nevada County Hospital February 8, aged 75, of influenza.

Ira Singleton Taylor, Tunica, Miss.; Chattanooga (Tenn.) Medical College, 1905; member of the Mississippi State Medical Association; died February 14, aged 64, of heart disease.

Roy Connell Thompson ☉ Wilton, N. D.; Trinity Medical College, Toronto, Ont., Canada, 1900; at one time county health officer and member of the city council; died in Bismarck February 8, aged 67, of cerebral hemorrhage.

Edward Roswell Utley, Boston; Harvard Medical School, Boston, 1891; formerly city physician of Newton, Mass., member of the board of health, prison physician, Middlesex County, Mass., and chief of the medical staff of the Newton Hospital; died February 14, aged 81.

Crawford C. Wilson, Winter Haven, Fla.; University of the City of New York Medical Department, New York, 1888; died February 5, aged 82, of myocarditis and nephritis.

Raleigh Jack Wilson, Bailey, Miss.; University of Nashville (Tenn.) Medical Department, 1907; member of the Mississippi State Medical Association; died in Rush's Infirmary, Meridian, February 15, aged 61, of cardiac asthma.

DIED WHILE IN MILITARY SERVICE

Thomas Brabson Drinnen, Knoxville, Tenn.; University of Tennessee College of Medicine, Memphis, 1933; member of the Tennessee State Medical Association; served on the staffs of the Knoxville General and Fort Sanders hospitals; commissioned a first lieutenant in the medical corps, Army of the United States, June 10, 1942; later promoted to captain; died in European area February 24, aged 35, of carbon monoxide poisoning.

Myron Richard Halsbond, Far Rockaway, N. Y.; University of Louisville (Ky.) School of Medicine, 1939; commissioned a first lieutenant in the medical corps, Army of the United States, on June 2, 1942; later promoted to captain; died in the European area Dec. 12, 1943, aged 32, of accidental carbon monoxide poisoning.

Nathan Wicker Hyland, Derry Village, N. H.; Tufts College Medical School, Boston, 1935; major, medical reserve corps, U. S. Army; commissioned a first lieutenant on May 28, 1941; a flight surgeon in the air corps; died in England January 28, aged 36, of injuries received in a parachute accident.

Jerome Konigsberg, San Francisco; University of California Medical School, San Francisco, 1936; member of the California Medical Association; served as clinical assistant in medicine at his alma mater; formerly on the staff of the Mount Zion Hospital; commissioned a first lieutenant in the medical reserve corps of the U. S. Army on May 23, 1936; called to active duty on Nov. 1, 1940; promoted to captain; died in Sydney, Australia, February 4, aged 35, of carcinoma of the liver.

Charles Byron Kornis Jr., Derry, Pa.; Jefferson Medical College of Philadelphia, 1937; member of the Medical Society of the State of Pennsylvania; formerly on the staff of the Latrobe Hospital, Latrobe; commissioned a first lieutenant in the medical corps, Army of the United States, on April 13, 1943; accidentally drowned January 26, while in the Bahama Islands, aged 32.

Richard Francis Northrop, Melrose Park, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1931; commissioned a first lieutenant in the medical reserve corps of the U. S. Army on Dec. 15, 1939; later promoted to captain; died suddenly in Framingham, Mass., March 12, aged 37, of disease of the coronary arteries.

Milton Ross Ort, Columbus, Ohio; Indiana University School of Medicine, Indianapolis, 1938; major, medical reserve corps, U. S. Army; commissioned in 1938 with the rank of first lieutenant; was attached to the navy command under Admiral Halsey; died in the South Pacific area, February 17, of third degree burns received in an explosion and fire when he stepped on the starter of a vehicle, aged 39.

Samuel Gerard Rosenfeld ☉ Brooklyn; Université de Lausanne Faculté de Médecine, Switzerland, 1935; on the staff of the New York Post-Graduate Medical School and Hospital, New York, where he served in the department of allergy; commissioned a first lieutenant in the medical corps, Army of the United States, on Oct. 19, 1942; began extended active duty on Nov. 3, 1942 and assigned to the 98th Evacuation Hospital, Camp Shelby, Miss.; later promoted to captain; killed in an airplane accident 17 miles south of Memphis, Tenn., February 10, aged 34.

William Warner Samuelsen, Brooklyn; Long Island College of Medicine, Brooklyn, 1936; member of the Medical Society of the State of New York; served on the staffs of the Norwegian Lutheran Deaconesses' Home and Hospital and the Kings County Hospital; commissioned a lieutenant (jg) in the medical corps of the U. S. Naval Reserve in July 1942 and later promoted to lieutenant; died in the Southwest Pacific area Dec. 19, 1943, aged 32, of injuries received in an airplane accident.

Charles Blake Skinner, Yonkers, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1941; School of Tropical Medicine, Walter Reed Hospital, Washington, D. C., 1943; began extended active duty as a first lieutenant in the medical corps, Army of the United States, on Aug. 17, 1942; later promoted to captain; a battalion surgeon; attached to the 137th infantry; accidentally drowned March 23, aged 28, near Davis, W. Va., in a heroic attempt to save the life of an enlisted man.

Correspondence

THE CONCEPT OF ORGANIC UNITY AND PSYCHOSOMATIC MEDICINE

To the Editor:—Within the past few years psychosomatic medicine has held increasing interest by the entire profession. It has made considerable advances and is undergoing rapid further development. It is important that the formulations it employs be clear and correct.

In his article "The Concept of Organic Unity and Psychosomatic Medicine," which appeared in *THE JOURNAL* March 18, Dr. George Draper emphasizes the unity of the psychosomatic organism. In his argument Dr. Draper sets down the definition "The term 'psyche' in relation to disease connotes that quality which distinguishes a living cell or organism from a dead one. It springs with the first impregnate cell, and from the first division permeates every tissue of the entire creature, just as it vanishes in death. Psyche, therefore, is the life force. . . . Hence, in conjunction with innumerable agents of environment, the vivified or psychified protoplasm becomes one of the two essential factors which together produce different aspects of health and disease." He goes on to say "If we accept this definition of psyche, then there remains no question of the unity of the organism."

Though such a definition of psyche has the appearance of simplicity, it generates confusion; and though it seems inclusive, it really excludes a great deal.

Dr. Draper, even while attempting to dissolve the dichotomy between psyche and soma (traditionally called mind and body), tacitly adopts the concepts of the dualists. Thus he cannot avoid dualism in the end. He does not do away with the dichotomy, he merely displaces it, so that it now rests between an ever so broad psyche, which is equated with life, and a narrow soma, which becomes but the material residue of death.

This overextended concept of psyche is almost meaningless and its outcome is different from that which Dr. Draper intends. For example, a logical corollary of it would be that all disease is psychogenic. For if psyche is the "life force"—that quality which distinguishes a living organism from a dead one—then the soma becomes merely the substrate of the psyche, merely its mode; and disease, which is after all the reaction of a living organism, becomes psychic. This hovers close to philosophic spiritualism.

The abolition of the dualism which has hampered the development of psychosomatic medicine does not consist merely in taking from soma to give to psyche, as Dr. Draper has done, but rather in recognizing the true nature of the relation between the mind and the body. The central process is unitary but it is not simple. Though the psyche is rooted in the biologic being, it emerges into ever more complex levels of physiologic, personal and social integration. Ultimately the living organism must be conceived as proceeding on many different and interacting levels of integration at once.

Further, the definition is inadequate from the utilitarian point of view. The qualitative reduction of the psyche into the life force constitutes an impoverishment of the entire organism. It leads to the abolition of useful distinctions not only between psyche and soma but also between different levels of integration within the psyche. The physician must remain aware of these differences in order to find a practical avenue of approach to his patient. In order successfully to manipulate the psyche he must remain cognizant of its fulness and complexity.

I would suggest that the formulation of the psychosomatic problem be such as will (1) avoid dichotomy in any form and emphasize the unity of the organism, (2) recognize the emergent nature of the psyche and (3) maintain useful distinctions at all levels of emergence. At this stage of the development

of psychosomatic medicine it is my impression that its formulations might well be flexible working hypotheses subject to modification from empirical sources, the final definition to come at the conclusion of an investigation rather than at its beginning.

These remarks are intended as a plea for clarity and correctness of approach in a new and promising field of medicine. History has too often demonstrated how "academic" oversights may have grave practical consequences.

JACK NELSON, M.D., New York.

[When shown a copy of Dr. Nelson's communication, Dr. Draper replied:]

To the Editor:—That the article "The Concept of Organic Unity and Psychosomatic Medicine" has provoked so penetrating and thoughtful a discussion as that of Dr. Nelson is a gratification. It was precisely the author's hope and purpose to elicit notions pro and con concerning the need of a dualistic adjective qualifying the great discipline of medicine; for the latter has always striven to encircle the presenting phases termed mind and body, as well as to uncover their biologic foundation.

By focusing his remarks on the definition of "psyche," Dr. Nelson has perhaps reopened the age old discussion of what he himself refers to as "philosophic spiritualism." The earlier sections of the paper, however, which he passed over, strove to deal with the biologic qualities of different protoplasms. They at least possess demonstrable chemical structures whose interactions are related to the transmutation of cosmic energy. Chemical changes in these protoplasms have long been linked with shifts of mood, as "liverish" and "out of sorts," the "melancholic," and so on. Moreover, it was suggested that insulin or electric shock could only produce convulsion in protoplasm. And following that phenomenon the "psychic" state might change again.

Dr. Nelson's defense of the two pronged word is a defense of the ancient assumption of a mind (up there in the brain) and body (down here in the flesh and blood). I agree with him that the central process is unitary and inexpressibly complex. For that reason the problem would seem to be best approached from the biochemical point of view so that, instead of treacherous word connotations, we may hope finally to comprehend the man within the patient on a basis of demonstrable biologic phenomena.

GEORGE DRAPER, M.D., New York.

Columbia University College of Physicians and Surgeons.

ESTIVOAUTUMNAL MALARIA

To the Editor:—Having just read the first article in *THE JOURNAL* of January 8, which deals with estivoautumnal malaria and which was presented by Drs. Harry Most and Henry E. Meleney, I hasten, as a veteran practitioner in this branch of medicine, to warn against the recommendations on their part of intravenous quinine therapy. It is amusing to note that a former assistant of mine, namely Dr. Wendell S. Dove, who is at present serving as a lieutenant colonel in our army somewhere in the Mediterranean, presented an article (*Am. J. Trop. Med.* 22:227 [May] 1942) wherein he stated that it was his firm conviction that intravenous quinine therapy was never indicated under any circumstances. I believe he received his first shock when about seventeen years ago he saw a child, the daughter of a veterinarian, die just after I had given intravenous quinine with saline and dextrose solution. The child had been ill quite a few days before treatment was begun, and even the thin smear showed a very heavy *Plasmodium falciparum* infection and a decidedly reduced red blood cell count together with a high percentage of Schilling's youth forms in the neutrophilic leukocyte count, which augured very poorly from a prognostic standpoint.

This clash in opinions of the apparently serious minded enthusiasts from such opposite poles of thought would induce any conservative person to follow a sort of midchannel course, if I may be pardoned in the event that my metaphors may be a trifle mixed, and this recommendation precisely constitutes the definite purpose of the present communication.

I cannot too strongly advise that intravenous quinine therapy is a serious and dangerous form of treatment and should be administered only when absolutely necessary. When it is decided that this form of treatment is definitely indicated, the quinine should be given in small doses (not more than one ampule of the dihydrochloride, $7\frac{1}{2}$ grains, or 0.5 Gm., at a time) well diluted in a slightly hypertonic saline and dextrose solution, about 300 cc., and should be injected very slowly.

In heavy infections of estivoautumnal malaria there is danger that intravenous quinine might, disastrously for the patient, destroy too many parasites too quickly. It is not easy to know exactly when intravenous quinine is definitely indicated. Long experience in this phase of medicine alone can guide one's judgment, together with giving due consideration to the personal equation factor. It is most often indicated in certain of the cerebral and cardiac forms in which symptoms of parasitic emboli are manifested or when the patient is in coma or semi-comatose or when pronounced delirium, tetanic signs, cyanosis, definite diaphoresis, certain psychoses or even temporary paralysis complicates the clinical picture. I had the honor of reporting 2 such unusual cases in *THE JOURNAL*, Jan. 13, 1917 and Sept. 13, 1924.

For the simple bilious remittent type, which is the least dangerous of all the pernicious forms of the subtertian type, large intramuscular injections give the best results and are safest. Because of the constant vomiting this condition cannot be treated orally and the drug must be injected. Large adults have had to be given as many as three and four intramuscular injections of from 15 to $22\frac{1}{2}$ grains (1 to 1.5 Gm.) each of the dihydrochloride within a space of twenty-four hours. These should be given, of course, by nurses who have been specially trained.

Because it is considered that the yellowish discoloration of the skin other than that caused by hematogenous or hepatogenous jaundice in these cases is attributable to adrenal degeneration, which is a part of the general cloudy swelling of all the viscera, epinephrine had best be administered with the quinine in both intravenous and intramuscular injections. It is also quite recommendable that forms of malarial therapy other than the quinine had best be preceded by quinine. I brought this out in an article (*Am. J. Trop. Med.* 5:27 [Jan.] 1925) in which I mentioned that malaria could be treated with neoarsphenamine after about a week of quinine administration; and more recently (*Ann. Int. Med.* 12:353 [Sept.] 1938) I advised that even a course of atabrine treatment might be enhanced by a few days of preliminary quinine therapy.

The best forms of quinine, of course, are the hydrochloride, the dihydrochloride and the bisulfate. The sulfate tablets and the comparatively tasteless ethyl carbonate have a much lower degree of solubility but also have their distinct advantages.

In concluding I want also to stress the fact that too little attention is given to plasmochin. This because of its gametocidal properties and therefore for prophylactic reasons should be administered in small doses with quinine or atabrine treatment when these drugs can be given orally. For reference I might offer publications regarding plasmochin which were submitted in annual reports of the United Fruit Company's Medical Department from 1926 to 1930.

OTTO TIEMANN BROSIUS, MD., D.T.M.&H.,
Santa Marta, Colombia.

Superintendent, Medical Department,
Magdalena Fruit Company.

[NOTE.—The letter was referred to Dr. Most, who replies:]

To the Editor:—The controversy between the advocates of intravenous and intramuscular quinine is a long one. However, we believe that the indications for intravenous quinine in falciparum malaria are clearly defined. It is recognized that intravenous quinine given improperly is a dangerous procedure. Not only are the cautions emphasized but the indications for intravenous quinine are clearly stated in the paper in question. Further, the senior author has himself administered well over one thousand doses of quinine intravenously to patients seriously ill with falciparum malaria and has experienced no ill effects which could be attributable to the use of quinine by vein.

HARRY MOST, Captain, M. C., Memphis, Tenn.
Chief of Malaria Section, Kennedy General Hospital.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in *THE JOURNAL*, May 6, page 83.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Montgomery, Oct. 24-26. Sec., Dr. B. F. Austin, 519 Dexter Ave., Montgomery.
ALASKA: Juneau, September 5. Sec., Dr. W. M. Whitehead, Box 561, Juneau.

ARKANSAS: * *Eclectic*. Little Rock, June 8. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: San Francisco, June 27-29. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

CONNECTICUT: * *Written*. New Haven, July 11-12. *Endorsement*. New Haven, July 25. Sec. to the Board, Dr. Creighton Barker, 258 Church St., New Haven. *Homeopathic*. Derby, July 11-12. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven.

DELAWARE: Dover, Oct. 10-12. Sec., Medical Council of Delaware, Dr. J. S. McDaniel, 229 S. State St., Dover.

FLORIDA: * Jacksonville, June 26-27. Sec., Dr. W. M. Rowlett, Box 786, Tampa.

HAWAII: Honolulu, July 10-13. Sec., Dr. J. A. Morgan, 55 Young Bldg., Honolulu.

IDAHO: Boise, July 11. Dir., Bureau of Occupational Licenses, Mrs. Lela D. Painter, 355 State Capitol Bldg., Boise.

IOWA: * Iowa City, Sept. 25-27. Dir., Division of Licensure and Registration, Mr. H. W. Greife, Capitol Bldg., Des Moines.

KANSAS: November. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. Seventh St., Kansas City.

KENTUCKY: Louisville, Sept. 11-12. Sec., State Board of Health, Dr. Philip E. Blackerby, 620 S. Third St., Louisville.

MARYLAND: * *Medical*. Baltimore, June 13-16. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic*. Baltimore, June 20-21. Sec., Dr. J. A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, July 11-14. Sec., Board of Registration in Medicine, Dr. H. Q. Gallup, 413 F State House, Boston.

MICHIGAN: * Ann Arbor, July. Sec., Board of Registration in Medicine, Dr. J. E. McIntyre, 100 W. Allegan St., Lansing.

MISSISSIPPI: Jackson, May 29-30. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MISSOURI: St. Louis, August. Sec., State Board of Health, Dr. James Stewart, State Capitol Bldg., Jefferson City.

NEW JERSEY: Trenton, June 20-21. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW YORK: Albany, Buffalo, New York City and Syracuse, June 26-29. Sec., Dr. R. R. Hannon, Education Bldg., Albany.

NORTH CAROLINA: Raleigh, September. Sec., Dr. W. D. James, Hamlet.

NORTH DAKOTA: Grand Forks, July 5-8. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OHIO: * *Endorsement*. Columbus, July 4. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: * Oklahoma City, Sept. 16. Sec., Dr. J. D. Osborn, Jr., Frederick.

OREGON: * Portland, July. Exec. Sec., Miss L. M. Conlee, 603 Failing Bldg., Portland.

SOUTH CAROLINA: Columbia, June 26-28. Sec., Dr. N. B. Heyward, 1329 Blandena St., Columbia.

TEXAS: Galveston, June 26-28. Sec., Dr. T. J. Crowe, 918-20 Texas Bank Bldg., Dallas.

VERMONT: Burlington, Sept. 12-14. Sec., Dr. F. J. Lawliss, Richford.

WISCONSIN: * Milwaukee, June 27-29. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Cheyenne, June 5-6. Sec., Dr. M. C. Keith, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

COLORADO: Denver, June 7-8. Sec., Dr. E. B. Sparks, 1459 Ogden St., Denver.

CONNECTICUT: June 10. Address State Board of Healing Arts, 250 Church St., New Haven 10.

FLORIDA: Gainesville, June 8. Sec., Dr. J. F. Conn, John B. Stetson University, DeLand.

IOWA: Des Moines, July 11. Dir., Division of Licensure and Registration, Mr. H. W. Greife, Capitol Bldg., Des Moines.

NEW MEXICO: Santa Fe, June 12. Sec., Miss Marian M. Rhea, State Capitol Bldg., Santa Fe.

OKLAHOMA: Oklahoma City, July 3. Sec., Dr. J. D. Osborn Jr., Frederick.
 OREGON: Corvallis, July 8. Final date for filing application is June 21. Sec., Board of Higher Education, Mr. C. D. Byrne, Eugene.
 RHODE ISLAND: Providence, May 17. Sec., Division of Examiners, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.
 SOUTH DAKOTA: Vermillion, June 4-5. Sec., Dr. G. M. Evans, Yankton.
 TENNESSEE: Nashville and Memphis, June 23-24. Sec., Dr. O. W. Hyman, Memphis.
 WISCONSIN: Milwaukee, June 3. Sec., Prof. R. N. Bauer, 152 W. Wisconsin Ave., Milwaukee.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Optometry Practice Acts: Licensed Physician May Not Practice as Employee of Unlicensed Persons.—The National Optical Stores Company is a partnership composed of six members of the Ritholz family operating a chain of so-called optical stores in several states. Not one of the partners is "a physician, optometrist, ophthalmologist or in other respects professionally equipped." One of the stores so operated is in Little Rock, Ark. It was claimed by the partners in a suit to enjoin them from practicing optometry in Arkansas through the services of licensed physicians or optometrists, or otherwise, that the business of the Little Rock store was "merchandising; that in effect it sells glasses the way a druggist fills prescriptions for medicine." Newspaper advertising with respect to the store stated "All glasses sold by us are ground by expert optical artisans in our modern laboratory on prescription of a licensed doctor." It appeared also that a licensed physician occupied space in the store for which he ostensibly paid rent. He also had another office off the store premises. This physician examined the eyes of patrons of the store who desired professional attention, charging them one dollar each for the examination and receiving from the store 20 per cent commission on glasses sold by the store on his prescription. Apparently his "practice" was limited to patrons of the store. The trial court issued the injunction prayed for, and the Ritholzs appealed to the Supreme Court of Arkansas.

The present action, said the Supreme Court, is not one to enjoin the commission of a crime, as such. Its purpose, primarily, is to prevent the illegal practice of optometry rather than to penalize the practitioner. If the latter alone were the object, chancery would be without jurisdiction. The rule, as stated in 28 American Jurisprudence, page 338, is that acts amounting to a public nuisance will be restrained if they affect the civil or property rights or privileges of the public, or endanger the public health, regardless of whether such acts are denounced as crimes. The contract by which the licensed physician agreed to pay stipulated rental for occupying space in the Little Rock store, *prima facie*, merely creates the relationship of landlord and tenant. Affirmative expressions were used at the trial in a seeming effort to emphasize what the Ritholzs contend to have been the purpose of their arrangement with the physician—that is, merely to provide convenient office quarters for the physician so that customers of the store might be accommodated if on their own initiative they elected to have professional assistance in instances in which the advice of an optometrist or physician was required. We think, continued the court, the facts in this case are controlled by *Melton v. Carter*, 204 Ark. 595, 164 S. W. (2d) 453, where in upholding the constitutionality of the optometry practice act of Arkansas the court said that the legislative object of the act was to prohibit employment of an optometrist by one who is not licensed. In other words, under that decision, "a layman may not engage in the profession by employing a licensed optometrist." The decree entered by the trial court in this case found that the lease agreement was collusive—"A fiction for the agency that exists between the parties," as the chancellor (the trial judge below) expressed it. We think the testimony sustains this finding.

Accordingly, the decree, in effect enjoining defendants from practicing optometry, was affirmed.—*Ritholz v. Arkansas State Board of Optometry*, 177 S. W. (2d) 410 (Ark., 1944).

Society Proceedings

COMING MEETINGS

- American Medical Association, Chicago, June 12-16. Dr. Olin West, 535 N. Dearborn St., Chicago 10, Secretary.
- American Association for the Surgery of Trauma, Chicago, June 9-10. Dr. Gordon M. Morrison, 520 Commonwealth Ave., Boston, Secretary.
- American Association of Genito-Urinary Surgeons, Stockbridge, Mass., June 8-10. Dr. Charles C. Higgins, 2020 E. 93d St., Cleveland, Secretary.
- American Association of Plastic Surgeons, Philadelphia, May 25-27. Dr. Frederick A. Figi, 102 Second Ave., S.W., Rochester, Minn., Secretary.
- American Association on Mental Deficiency, Philadelphia, May 11-15. Dr. Neil A. Dayton, Mansfield Training School, Mansfield Depot, Connecticut, Secretary.
- American Broncho-Esophagological Association, New York, June 6. Dr. Paul H. Holinger, 700 N. Michigan Ave., Chicago, Secretary.
- American College of Allergists, Chicago, June 10-11. Dr. Fred W. Wittich, 401 LaSalle Medical Bldg., Minneapolis 2, Secretary.
- American College of Chest Physicians, Chicago, June 10-12. Dr. Paul H. Holinger, 500 N. Dearborn St., Chicago, Secretary.
- American College of Radiology, Chicago, June 14. Mr. Mac F. Cahal, 540 N. Michigan Ave., Chicago, Secretary.
- American Diabetes Association, Chicago, June 11. Dr. Cecil Striker, 630 Vinc St., Cincinnati 2, Secretary.
- American Federation for Clinical Research, Chicago, June 12-13. Dr. Thomas M. Durant, 3401 N. Broad St., Philadelphia 40, Secretary.
- American Gastro-Enterological Association, Chicago, June 12-13. Dr. J. Arnold Bargen, 102 Second Ave. S.W., Rochester, Minn., Secretary.
- American Gynecological Society, Hershey, Penna., June 19-21. Dr. Howard C. Taylor Jr., 842 Park Ave., New York 21, Secretary.
- American Laryngological Association, New York, June 7-8. Dr. Arthur W. Proetz, 3720 Washington Blvd., St. Louis 8, Secretary.
- American Laryngological, Rhinological and Otolological Society, New York, June 9-10. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.
- American Medical Women's Association, Chicago, June 10-11. Dr. Carroll L. Birch, 2045 Sedgwick St., Chicago, Secretary.
- American Neurological Association, New York, May 19-20. Dr. Henry Alsep Riley, 117 E. 72d St., New York 21, Secretary.
- American Ophthalmological Society, Hot Springs, Va., May 29-31. Dr. Walter S. Atkinson, 129 Clinton St., Watertown, N. Y., Secretary.
- American Physicians' Art Association, Chicago, June 12-16. Dr. F. H. Redawill, 536 Flood Bldg., San Francisco, Secretary.
- American Proctologic Society, Chicago, June 11-15. Dr. W. H. Daniel, 1930 Wilshire Blvd., Los Angeles 5, Secretary.
- American Psychiatric Association, Philadelphia, May 15-18. Dr. Winfred Overholser, St. Elizabeth's Hospital, Washington, D. C., Secretary.
- American Psychoanalytic Association, Philadelphia, May 13-15. Dr. Robert P. Knight, 3617 W. Sixth Ave., Topeka, Kansas, Secretary.
- American Therapeutic Society, Chicago, June 10. Dr. Oscar B. Hunter, 1835 I St. N.W., Washington 6, D. C., Secretary.
- American Urological Association, St. Louis, June 19-22. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secretary.
- Association for Research in Ophthalmology, Chicago, June 13. Dr. B. F. Payne, School of Aviation Medicine, Randolph Field, Texas, Secretary.
- Association for the Study of Internal Secretions, Chicago, June 12-13. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City, Secretary.
- Illinois State Medical Society, Chicago, May 16-18. Dr. Harold M. Camp, 224 S. Main St., Monmouth, Secretary.
- Maine Medical Association, Rockland, June 25-27. Dr. Frederick R. Carter, 142 High Street, Portland 3, Secretary.
- Massachusetts Medical Society, Boston, May 23-24. Dr. Michael A. Tighe, 8 Fenway, Boston 15, Secretary.
- New Hampshire Medical Society, Manchester, May 16. Dr. C. R. Metcalf, 5 S. State St., Concord, Secretary.
- Rhode Island Medical Society, Providence, May 24-25. Dr. William P. Buffum, 122 Waterman St., Providence 3, Secretary.
- Society for Investigative Dermatology, Chicago, June 13. Dr. S. W. Becker, 55 E. Washington St., Chicago, Secretary.
- South Dakota State Medical Association, Huron, May 21-23. Dr. Roland G. Mayer, 22½ S. Main St., Aberdeen, Secretary.
- West Virginia Medical Association, Wheeling, May 15-16. Mr. Charles Lively, P. O. Box 1031, Charleston, Executive Secretary.
- Wyoming State Medical Society, Casper, May 28. Dr. M. C. Keith, Capitol Building, Cheyenne, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1934 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

27:145-288 (Feb.) 1944

Orthostatic Tachycardia and Orthostatic Hypotension: Defects in Return of Venous Blood to Heart. A. R. MacLean, E. V. Allen and T. B. Magath.—p. 145.

Electrocardiographic Changes (Local Ventricular Ischemia and Injury) Produced in Dog by Temporary Occlusion of Coronary Artery, Showing a New Stage in the Evolution of Myocardial Infarction. R. H. Bayley, J. S. LaDue and Dorothy Joseph York.—p. 164.

*Graphic Registration of Venous Pressure Taken by Direct Method. J. E. Wood Jr. and K. T. McKee.—p. 170.

Studies on Production and Maintenance of Experimental Auricular Fibrillation. J. R. Smith and K. S. Wilson.—p. 176.

Effect of Thyroid Extract, Adrenalin and Combination of These on Hearts of Intact and Thyroidectomized Rabbits. H. Gross and S. S. Greenberg.—p. 186.

Presence of Electrocardiographic Changes in Nicotinic Acid Deficiency and Their Elimination by Nicotinic Acid. M. Rachmilewitz and K. Braun.—p. 203.

A-V Block in A-V Nodal Rhythm. R. Langendorf, A. J. Simon and L. N. Katz.—p. 209.

Atypical Coarctation of Aorta with Absence of Left Radial Pulse. A. Grishman, M. L. Sussman and M. F. Steinberg.—p. 217.

Electrocardiographic Studies After Surgical Operations on Heart. H. Feil and L. Alperin.—p. 225.

Electrocardiographic Changes in Relation to Tolerance of Sustained Anoxic Anoxia in Dogs. W. C. Randall.—p. 234.

Sarcoidosis of Heart: Report of Case and Review of Literature. J. B. Johnson and R. S. Jason.—p. 246.

Graphic Registration of Venous Pressure.—Wood and McKee believe that technical difficulties may partially account for the fact that there are few studies of directly measured and graphically recorded venous pressures in human beings. The main obstacle appears to be lack of a suitable mechanical recording device which will register pressures in millimeters of water and be adaptable to sterile technic. The authors give a brief description of a simple apparatus which can be assembled in any hospital laboratory. A convenient adaptation is a sensitive, float-recording manometer which is suitable for pressures of the order required. The apparatus is arranged so that only a portion of it need be sterilized. Venous pressure is recorded on a smoked drum, and a nonrecording water manometer is included in the system to verify values recorded on the drum. The recording manometer may be accurately calibrated, and pressure changes are recorded by a system entirely filled with liquid. The apparatus may be placed on a table and rolled about as desired. The authors made fifty observations on patients with this method and have obtained continuous graphic records of venous pressure over periods of twenty to forty-five minutes. This modification of the method of Moritz and von Tabora permits accurate, graphic registration of venous pressure in man.

American J. Digestive Diseases, Fort Wayne, Ind.

11:31-62 (Feb.) 1944

Effect of Atropine Sulfate, Morphine Sulfate, Pilocarpine Hydrochloride, Prostagmine Methylsulfate, Sodium Salt of Dehydrocholic Acid and Secretin on Gastric and Duodenal Secretions of Normal Persons When Fasting. H. E. King and M. W. Comfort and A. E. Osterberg.—p. 31.

Seasonal Gastroenteritis in Colorado. H. Gauss.—p. 40.

Effect of Lemon Juice on Pepsin Activity Between pH 2.4 and 4, Range of Achlorhydria. T. C. Manchester.—p. 43.

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Lesions of Small Intestine. H. W. Soper.—p. 47.

Indigestive Discharge of Duodenal Content in Man. W. V. Berger.—p. 49.

American Journal of Diseases of Children, Chicago

67:89-166 (Feb.) 1944

Initial Aerobic Flora of Newborn (Premature) Infants: Nature, Source and Relation to Ultraviolet Irradiation and Face Masks. J. C. Torrey and Martha K. Reese.—p. 89.

Ketosis in Relation to Hepatic Reserves of Glycogen: Study of Normal and of Diabetic Children. I. A. Mirsky and W. E. Nelson.—p. 100.

Electrocardiographic Variations in Acute Glomerulonephritis. Rachel Ash, M. I. Rubin and M. Rapoport.—p. 106.

Recurrent and Chronic Diarrhea in Infancy and Childhood. J. H. Lapin.—p. 139.

American Journal of Psychiatry, New York

100:443-584 (Jan.) 1944

Schizophrenia and Paranoid Psychoses Among College Students. T. Raphael and L. E. Himler.—p. 443.

Sociological Changes Predisposing Toward Juvenile Delinquency. D. A. Thom.—p. 452.

Technics and Factors Reversing Trend of Population Growth in Illinois State Hospitals. C. Sommer and J. Weinberg.—p. 456.

Appraisal of Personality Types of Addict. R. H. Felix.—p. 462.

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Results of Hospital Treatment of Alcoholism. J. H. Wall and E. B. Allen.—p. 474.

Intellectual Impairment in Head Injuries. J. Ruesch.—p. 480.

Frequency of Convulsive Disorders in Feeble-minded: Clinical and Pathoanatomic Consideration. R. W. Waggoner and J. G. Sheps.—p. 497.

Role of Premorbid Personality in Arteriosclerotic Psychoses. D. Rothschild.—p. 501.

Study of Casualties Occurring in Institutions Under Supervision of Massachusetts Department of Mental Health. W. W. Jetter and R. V. Hadley.—p. 506.

Psychoanalytic Perspectives. E. A. Strecker.—p. 516.

Freud's Scientific Cradle. F. Wittels.—p. 521.

International Psychiatry in Postwar World. G. H. Stevenson.—p. 529.

American Journal of Surgery, New York

63:151-300 (Feb.) 1944

Bone Grafts to Mandible. G. B. New and J. B. Erich.—p. 153.

Cesarean Section: Rational Use of Operation. D. M. Vickers.—p. 168.

*Carcinoma of Gallbladder: Clinical and Pathologic Study. J. L. Vadheim, H. K. Gray and M. B. Dockerty.—p. 173.

Management of External Biliary Fistula. R. R. Best.—p. 181.

Improved Technic for Closure of Loop Colostomy. J. W. Housner.—p. 187.

Rapid Rehabilitation in Shipbuilding Industry. K. A. Koerber.—p. 192.

Reconstruction of Nasal Tip: New Technic. M. Maltz.—p. 203.

Pyogenic Liver Abscess in the Aged. R. S. Smith.—p. 206.

Right Inguinal Hernia Following Lower Abdominal Incisions: Report of 31 Cases. N. W. Thiessen.—p. 214.

Role of Aseptic Bone Necrosis in Hip Lesions. E. Bergmann.—p. 218.

*Sedation in Patients with Acute Head Injury. E. S. Gurdjian and J. E. Webster.—p. 236.

Cepryn (Cetylpyridinium Chloride): Clinical and Bacteriologic Studies. G. B. Kramer and S. H. Sedwitz.—p. 240.

Persistence of Pain After Appendectomy. B. Judovich and J. Dunn.—p. 246.

Cardiovascular and Respiratory Effects from Celiac Ganglia Stimulation in Man. S. J. Martin, L. Miscall and E. A. Roventine.—p. 259.

Carcinoma of Gallbladder.—Vadheim and his associates state that in 33,500 operations on the biliary tract performed at the Mayo Clinic in the years 1907 to 1940 inclusive there were 291 cases of primary carcinoma of the gallbladder, an incidence of 0.87 per cent. In 77 (26.5 per cent) of these cases removal of the gallbladder or a large portion of the gallbladder was possible. Carcinoma of the gallbladder occurs most frequently in the fifth decade of life and is predominantly a disease of women. Stones were associated with the carcinoma in 88 per cent of cases, and they preceded the development of the carcinoma in 58.5 per cent of these cases. An analysis of the early symptoms revealed nothing which could not be attributed to the presence of chronic inflammation of the gallbladder with or without cholelithiasis. Adenocarcinoma was the type in 85.3 per cent, squamous cell carcinoma in 2.7 per cent and adenocarcinoma (mixed adenocarcinoma and squamous cell carcinoma) in 12 per cent. Three instances of malignant degeneration in a papilloma and 1 in an adenoma were found. The finding of areas of metaplasia in the mucosa and of adenocarcinoma and squamous cell carcinoma in the same tumor lends support to the theory of metaplasia for the origin of squamous cell carcinoma.

noma. Five year cures were obtained in 45 per cent of the cases of carcinoma grade 1, in 4.3 per cent in cases of grade 2 and in none of the cases of carcinoma of the other grades. In no instance was a definite diagnosis made preoperatively.

Sedation in Patients with Head Injury.—Gurdjian and Webster recommend the use of codeine in combination with pentobarbital sodium for the restlessness due to cerebral injury after secondary disturbing factors have been eliminated. Study of the cerebrospinal fluid pressure, pulse, respirations, blood pressure and motor activity indicate that codeine and pentobarbital sodium are effective and least harmful. Their use should be discontinued as soon as possible and their routine use is condemned. The administration of morphine should be avoided except when it becomes imperative for relief from pain.

Annals of Internal Medicine, Lancaster, Pa.

20:193-360 (Feb.) 1944

*Some Clinical Studies of Acute Hepatitis Occurring in Soldiers After Inoculation with Yellow Fever Vaccine, with Especial Consideration of Severe Attacks. R. H. Turner, J. R. Snavely, E. B. Grossman, R. N. Buchanan, and S. O. Foster.—p. 193.

Management of Certain Aspects of Gas Poisoning, with Particular Reference to Shock and Pulmonary Complications. M. S. Segal and M. Aisner.—p. 219.

Mechanism and Treatment of Raynaud's Disease: Psychosomatic Disturbance. I. Mufson.—p. 228.

*Metabolic and Vitamin Studies in Chronic Ulcerative Colitis. Z. Bercovitz and R. C. Page.—p. 239.

Occupational Allergy of Respiratory Tract. V. J. Derbes and T. Winsor.—p. 255.

Optimal Dose of Mercurial Diuretics. W. Modell.—p. 265.

Infection Due to Salmonella Cholerae Suis. P. C. Eschweiler, J. G. Wallin and Ann Suow.—p. 275.

*Studies on Infectious Mononucleosis. L. A. Julianelle, O. S. Bierbaum and C. V. Moore.—p. 281.

History Taking in Allergy: Outline For and a Comparison Of Results From 200 Histories and Skin Tests. O. Swineford Jr. and W. M. Weaver.—p. 293.

Acute Hepatitis After Inoculation with Yellow Fever Vaccine.—Turner and his associates state that the opportunities for clinical studies at Camp Polk, Louisiana, were unusual owing to the size of the epidemic and to the number of patients with severe hepatitis. Hepatitis at this camp was the result of only one lot of yellow fever vaccine, number 369, which provided a highly icterogenic vaccine. The number of patients with hepatitis was 4,083, and there were 14 deaths. Two requirements were necessary for inclusion of a case in this study: previous inoculation with yellow fever vaccine and evidence of hepatitis for which no other cause than vaccination could be found. The principal evidence of hepatitis was icterus. Hepatitis was diagnosed in the absence of icterus if patients gave a history of a recent onset of suggestive symptoms which included anorexia and dark urine, and if either enlargement of the liver or abnormal concentration of bile pigment in the blood or urine was found. The incubation period varied from nine to twenty-three weeks. Clinically the disease was indistinguishable from infectious hepatitis or catarrhal jaundice. The distinctive features were epidemiologic. Duration of disease, weight loss and highest icterus index were the criteria for classification. Eighty-one per cent were classed as mild, 17 per cent as moderately severe and 2 per cent as severe. The complications of hepatitis were dysfunction of the central nervous system, massive hemorrhages into the alimentary tract, ascites, sometimes with high protein concentration in the fluid, renal dysfunction as manifested by albuminuria and isosthenuria, skin rashes, gingivitis, and hemorrhages into skin and mucous membranes. Mental symptoms resembled some of those seen in acute alcoholism, hyperinsulinism and anoxia of the brain and indicated a grave prognosis. The number of days necessary for correction of prolonged prothrombin clotting after therapy with synthetic vitamin K was begun proved a valuable criterion for the degree of liver injury. The results of clinical and laboratory observations are compatible with the concept that there were two kinds of pathologic processes in the liver; one caused injury or death to hepatic cord cells and the other obstruction to flow of bile and less commonly of blood; the former was of brief duration and the latter frequently dominated the picture for most of the illness. The authors warn against using liver function tests for the diagnosis of surgically remediable biliary obstruction. Numerous observations indicated the great importance of rest

in treatment and of the regular, frequent intake of food, especially carbohydrate. Quantitative estimations of appetite of a few patients indicated a preference for a diet of normal proportions.

Metabolic and Vitamin Studies in Chronic Ulcerative Colitis.—Patients studied by Bercovitz and Page suffered from chronic ulcerative colitis for periods of more than one year and had either been hospitalized or remained ambulatory. Before studies were instituted all patients were on a diet which consisted of high protein, high vitamin, low residue foods. This diet contained about 2,000 calories with the distribution: protein 85 Gm., carbohydrate 200 Gm., fat 85 Gm. Vitamin intake from natural sources was assured by including in the diet at least 6 ounces of fresh orange or grapefruit juice, which contains approximately 85 mg. of vitamin C, butter, puréed carrots and green vegetables for vitamin A and carotenoids. Some of the patients received increased amounts of carbohydrate in the form of dextrin amounting to 345 calories daily. The authors made numerous tests of dextrose tolerance, the basal metabolism, vitamin A and C blood levels, the effect of vitamin K and the like. Fifty standard oral one dose, two hour tolerance tests using 100 Gm. of dextrose were carried out on 37 patients. Normal curves were obtained in 11 tests (18.9 per cent) and abnormal curves in 47 tests (81.1 per cent). Tolerance tests were made with 1 Gm. of dextrose per kilogram of body weight. Of 23 patients tested in this manner, 7 showed normal and 16 abnormal curves. The dextrose metabolism as determined by basal metabolic rates and respiratory quotients proved essentially normal in patients with chronic ulcerative colitis. None of 15 intravenous dextrose clearance tests could be considered normal. Dextrin maintained significantly higher blood sugar levels for three hours than did dextrose. Of 33 patients 8 had low fasting plasma vitamin A levels. Of 31 patients 5 had low fasting plasma carotenoid levels. Of 33 patients 20 had low fasting vitamin C plasma levels. Of 36 patients 7 had both normal vitamin C plasma levels and normal capillary fragility tests when they were performed at the same time. Of 36 patients 24 had an abnormal capillary fragility test denoting diminished capillary resistance. Of 108 prothrombin clotting time determinations 80 were abnormal. Percutaneous vitamin K analogue caused a decrease in prothrombin clotting time in 4 patients and no change in 4 others. Vitamin K analogue orally caused a decrease in prothrombin clotting time in 2 patients and none in 2 others. Vitamin K analogue plus bile salts orally caused a decrease in prothrombin clotting time to normal in 5 patients. Of 5 patients 3 had a definite decrease in rectal bleeding on vitamin K therapy. The syndrome of chronic ulcerative colitis is not confined to an altered physiology of the colon but is also manifested by (1) altered absorption and utilization, (2) an impairment of the insulin mechanism, (3) generalized decreased capillary resistance and (4) altered blood coagulation.

Infectious Mononucleosis.—Julianelle and his collaborators recovered *Listerella monocytogenes* from the blood of a patient with clinical, hematologic and serologic manifestations of the disease. Experiments since reported led to the conclusion that, in spite of its capacity to induce in animals a state similar to the human infection, this organism is not the actual incitant. The result of an unpublished experiment in which two of the writers were inoculated intracutaneously with diluted suspensions of the organism was a further reason for eliminating *Listerella* as the cause. The authors report experiments conducted to demonstrate a specific virus in infectious mononucleosis. The materials for transmission were blood, gargle washings and excised lymph nodes, and the animals employed were mainly rabbits, with a certain number of monkeys (*Macacus rhesus*) and smaller animals. Although changes in the peripheral blood such as leukocytosis, lymphocytosis and the occurrence of abnormal white cells was negligible and their presence was only transient. The presence of heterophile antibody accompanying the inoculations was similarly irregular and of low frequency as well as titer. Attempts to transmit infectious mononucleosis to man were unsuccessful. Two subjects gargled with the throat washings of one patient, and two others permitted the intramuscular injection of a saline extract of cervical

lymph nodes removed from patients during the febrile period of the disease. One of the latter subjects also sprayed his nasopharynx with a portion of the saline extract. In no instance did hematologic changes result which indicated that transmission had occurred.

Annals of Otol., Rhin. and Laryngology, St. Louis

52:779-1042 (Dec.) 1943

*Histoplasmosis and Its Importance to Otorhinolaryngologists: Review with Report of New Case. M. Moore and L. H. Jorstad.—p. 779. Role of Ciliary Action in Production of Pulmonary Atelectasis, Vacuum in Paranasal Sinuses and in Otitis Media. A. C. Hilding.—p. 816. Injuries of Cervical Thoracic Duct. W. L. Simpson and D. G. Graham.—p. 834.

Hearing: Postwar Problem. J. C. Howard Jr.—p. 843. Chronic Osteomyelitis of Skull. H. Brunner.—p. 850.

Importance of Histoplasmosis to Otorhinolaryngologists.—According to Moore and Jorstad histoplasmosis, Darling's disease or cytomycosis is a fungous infection caused by an organism of the genus *Histoplasma*. The disease is characterized by fever, loss of weight or emaciation, anemia, leukopenia and splenomegaly with invasion by reticulo-endothelial histiocytes containing organisms. It may be cutaneous or systemic, localized or generalized, involving the skin, spleen, liver, lungs, lymph nodes, adrenals, kidneys, pleura, prostate, heart, brain, larynx, ear, nose, eye, bone, bone marrow, periosteal tissue, gastrointestinal tract and other organs. The disease may be acute or chronic, lasting from a few weeks to many years, but is invariably fatal. The authors report the clinical history of a man aged 67 who was complaining of a sore in the roof of his mouth, which had begun two months previously. A biopsy taken revealed histoplasmas. The ulcerated area was removed by cautery. Several months later additional tissue was removed, but the patient became steadily worse and died less than five months after the first operation. The most reliable diagnostic method is the cultivation of the causative organism from infected tissue or blood. The author was able to collect 22 cases of histoplasmosis with lesions of the ear, nose or throat, separately or together, with or without lesions in other organs of the body. The symptoms referable to the oral cavity were chiefly cough, sore throat with swelling, hoarseness, pain on swallowing and aphonia. Nasal symptoms included a mucopurulent rhinitis in 1 case and difficulty in breathing through the nares in most cases with nasal lesions. Exudate was the chief sign of ear involvement with the addition of impaired hearing and pain.

Archives of Otolaryngology, Chicago

39:109-200 (Feb.) 1944

*Method of Application of Drugs to Nasal Mucosa: Comparison of Nasal Drops, Sprays and Inhalers. D. B. Butler and A. C. Ivy.—p. 109.

*Proper and Improper Administration of Oily Nasal Sprays. B. L. Griesman.—p. 124.

Streptomyces (Actinomyces) Albus in Ear. S. G. Odom, E. J. Rodenberg and P. Schain.—p. 137.

Solitary Neurofibroma of Larynx. T. T. Smith.—p. 144.

Possible Value of Nontoxic Concentrations of Fluorine in Prevention of Deafness from Otosclerosis and Fibrosis: Its Possible Value in Prevention of Other Diseases. A. Lewy.—p. 152.

Plastic Surgery in Facial Paralysis, with Modifications in Technique. E. S. Lamont.—p. 155.

Correlation Between Vestibular Function and Hearing in Profoundly Deaf Child. Mary Frances Vastine.—p. 164.

Application of Hemilaryngectomy Technique in Laryngectomy. M. C. Myerson.—p. 172.

Sculpturally Molded Synthetic Implants in Plastic Surgery. A. M. Brown.—p. 179.

Application of Drugs to Nasal Mucosa.—Butler and Ivy show that the comparison of the use of nasal drops, nasal sprays and volatile inhalers requires an agent that can be used either in solution or in volatile form. They found that the synthetic amine desoxyephedrine meets these requirements, and they used it throughout their studies. The nasal inhaler was prepared by placing 0.25 cc. of *d,l*-desoxyephedrine on the cotton cartridge of an inhaler. The inhaler output was measured and the average inhalations of the subjects of these experiments were determined by attachment of an inhaler to a spirometer. It could be calculated that the dose of drug administered by four deep inhalations was approximately 3.19

mg. of the drug. The volume output of a large atomizer was 0.0806 cc. per spray. If a 1 per cent solution was used the drug output would be 0.806 mg. per spray or 3.22 mg. for four sprays. A medicine dropper of standard size yielded 0.042017 cc. per drop. Thus a 1 per cent solution gave 0.42017 mg. per drop or 3.36 mg. from eight drops. The study of changes in nasal obstruction in the present experiments was conducted with a method modified from that of Sternstein and Schur. The instrument used consists of an electric suction pump attached to a gas flow meter and an inclined draft gage. The nasal resistance of each subject was measured before any drug was administered and after administration of the drug. Nine young men with no demonstrable pathologic condition were used as subjects for these experiments. The effects of prolonged medication with nasal drops, nasal sprays and nasal inhalers of vasoconstrictor amines were studied on normal adult rabbits. The studies revealed that volatile inhalers and nasal sprays are similar in intensity and duration of effects produced, while nasal drops are far less effective as a method of medication. The effects on the nasal mucosa produced by repeated administration of inhalers and sprays are similar, and both produced far less pathologic change than that resulting from the use of nasal drops. It would seem that the selection of methods of medication in acute rhinologic conditions should be limited to nasal inhalers and sprays in most instances. When medication is desired in local areas of the nasal chamber, as at the ostium of a paranasal sinus, drops may be the method of choice. In conditions requiring prolonged and repeated medication nasal drops should be used with caution, and sprays or inhalers are suggested as the methods of choice.

Proper and Improper Administration of Oily Nasal Sprays.—Griesman made roentgenographic studies of the distribution of intranasally sprayed oils in therapeutic dosage and in massive overdosage. Iodized poppyseed oil was admixed to the oils to be tested in order to insure roentgenographic visibility. The aim was to determine to what degree the oil might traverse the nasopharynx, the mesopharynx and the hypopharynx or into the larynx, trachea and lungs. Tests were made on 31 persons ranging in age from 6½ to 66 years, who were free from infection of the upper respiratory tract. Particular attention was given to various positions of the head. The author found that healthy persons, irrespective of age, might aspirate oil (primarily when sprayed) even in therapeutic dosage if the oil is improperly administered. The presence or the absence of tonsils and adenoids and the use of a 1 per cent solution of an ephedrine salt prior to the administration of oil apparently do not increase the danger of oil aspiration. Scarring in the tonsillar beds and injury to the posterior pillars after tonsillectomy tend to increase the danger that oil will be aspirated if the oil is incorrectly administered. Oil is carried downward by the force of gravity. The decisive factor of safety or danger is the position in which the head is held during and after the administration of oil. The danger begins and increases with the size of the angle of the backward inclination of the head. There is no danger when the head is held straight or bent forward, even when massive doses are employed. The factor of safety increases with the size of the angle of the forward inclination of the head.

Journal of Immunology, Baltimore

48:1-86 (Jan.) 1944

Analogy Between Effect of Complement on Sensitized E. Typhosa and Effect of Tissue Individuality on Sensitized Virus. M. C. Morris.—p. 17.

Detection with Electron Microscope of Rod Shaped Particles in Stools of Normal and Poliomyelitic Individuals. J. L. Melnick.—p. 25.

Quantitative Studies of Sulfonamide Inhibitors. L. A. Rantz and W. M. Kirby.—p. 29.

Studies on Influenza Infections in Chick Embryo. B. Sigurdson.—p. 39.

Chemotherapy of Lymphocytic Choriomeningitis in Mice and Guinea Pigs. J. A. Toomey and W. S. Takacs.—p. 49.

Alum Toxoid Prepared from Diphtherial Toxin Produced on Gelatin-Hydrolysate Medium. W. Elias.—p. 57.

Studies on *Listerella monocytogenes*. Mary Louise Robbins and A. M. Griffin.—p. 63.

Protection Against Spotted Fever by Specific Immune Serum Inoculated Intradermally at Site of Infection. L. Anigstein, M. N. Bader, G. Young and Dorothea Neubauer.—p. 69.

Antirenin. C. A. Johnson, G. E. Walkerlin and E. L. Smith.—p. 79.

Journal of Lab. and Clinical Medicine, St. Louis

29:121-230 (Feb.) 1944

- *Persistence of Influenza Virus on Human Hand. Ernestine R. Parker and W. J. MacNeal.—p. 121.
- Giant Orthochromatic Erythroblasts: Their Importance for Promegakoblast and Pronormoblast Problem. E. M. Schleicher.—p. 127.
- Antibacterial Effects of Various Acridine Compounds. G. R. Goetchius and C. A. Lawrence.—p. 134.
- General Considerations on Pathogenesis: Syphilitic Aortitis, Myocarditis, Hepatic Cirrhosis. R. Jaffé.—p. 139.
- Pharmacologic Action of 2-Methylaminoheptane (EA-1). D. E. Jackson.—p. 150.
- Simplification of Treatment of Diabetes. L. L. Pennoek.—p. 168.
- Circa 42, New Itch Remedy. J. F. Yeager and C. S. Wilson.—p. 177.
- *Clinical Use of Oral Thermometers: Report of Study to Determine Time Required for Reliable Registration. N. De Nosaquo, I. Kerlan, Lila F. Knudsen and T. G. Klumpp.—p. 179.
- Eliptocytosis, Report of 2 Cases. Mary K. Helz and Maud L. Menten.—p. 185.
- Reaction Following Ingestion of Sodium Benzoate in Patient with Severe Liver Damage: Severe Substernal Pain, Shock, Increase in Icterus, Granulocytopenia and Eosinophilia in Colored Male Following Hippuric Acid Excretion Test. R. E. Kinsey and D. O. Wright.—p. 188.

Persistence of Influenza Virus on Human Hand.—In their first two experiments Parker and her associates made virus suspensions from the lungs of influenza mice. These proved to be of a rather low potency and to withstand drying poorly. Experiment 3, in which allantoic virus was used, gave a strikingly different result. Here the virus evidently retained a high potency after being dry on the hand for ten minutes and dry on a glass surface for two hundred minutes. In experiment 4 the allantoic virus remained active forty minutes after being dried on the hand. In experiment 5 the hand in the ordinary way allowed the virus to retain its activity forty minutes after being dried on the skin. When water was allowed to dry on the hands the virus subsequently dried on the same areas promptly lost its potency. In other experiments the inactivating effect of soapy skin was compared with that of soap-free skin. These experiments are at variance with those of Krueger and his associates, who observed rapid loss of potency in virus deposited on the hand and therefore concluded that transmission through this agency is not apt to be an important hazard. Parker and her associates are inclined to the view that soiled hands may reasonably be regarded as important for the spread of influenza, especially the soiled hands of those concerned with the preparation and serving of food. Fortunately the virus of influenza appears to be inactivated by ordinary soaps.

Required for Reliable Registration by Oral Thermometers.—De Nosaquo and his collaborators sent a questionnaire to 100 training schools for nurses throughout the United States. This questionnaire asked (1) What is the minimum time interval between insertion and reading of clinical thermometers? and (2) Have the above time intervals been selected on the basis of the manufacturers' statements, your own clinical tests, common knowledge or some other basis? Of the 69 replies to the first question 27 answered that the time of insertion of the thermometer in recording oral temperature was less than three minutes, 37 stated three minutes and 5 recommended longer than three minutes. In reply to the second question 13 stated that these time intervals were based partially or wholly on manufacturers' statements, 30 on clinical test, 26 on common knowledge, 16 on textbook statements and 10 on experience. The authors decided to determine the time required for oral clinical thermometers to reach equilibrium in the mouths of persons. Approximately 1,000 clinical thermometers were collected by the Food and Drug Administration throughout the United States. Of these thermometers about 800 were found to meet the requirements and tests specified for clinical thermometers in the Bureau of Standards. By random sampling of these 800 thermometers, 20 instruments were selected for testing. The authors found that the character of the rise of the mercury column in an oral thermometer under clinical conditions is different from that under laboratory conditions. Thermometers marked with specific time designations "1 minute," "½ minute" and "60 seconds" were found to require about the same length of time for the instrument to reach equilibrium as thermometers with no time designations. Three minutes should be the minimum time interval allotted for an oral thermometer to reach equilibrium under ordinary conditions of use.

Medical Annals of District of Columbia, Washington

13:45-88 (Feb.) 1944

- Plastic Surgery in Combat and Civilian Casualties. R. H. Ivy.—p. 45.
- Continuous Sodium Pentothal in Cases Associated with Shock. C. E. Fierst.—p. 50.
- Method of Treatment of Meningococcal Meningitis with Sulfadiazine and Sulfamerazine (Sulfamethyldiazine) and the Results Obtained in 140 Cases. M. H. Lepper and Edith Dumoff Stanley.—p. 54.
- *Frontiers of Multiple Sclerosis: II. Treatment of Multiple Sclerosis, with Special Reference to Fever Therapy, Prolonged Rest and Climatotherapy. W. Freeman.—p. 58.

Multiple Sclerosis: Prolonged Rest and Climatotherapy.—Freeman points out that the fact that multiple sclerosis is characterized by remissions and relapses of great variability in degree and duration renders difficult the evaluation of any treatment. The author's experience with fever therapy has been unfavorable in all of the 11 cases in which he tried it. On the basis of a case history he shows that untoward happenings may bring on relapses in multiple sclerosis. Neglected head colds often bring on relapses. A patient with multiple sclerosis must be constantly on the alert to give up at the first sign of a cold in the head. It is much preferable for him to spend a day or two in bed, even if a cold does not develop, rather than to run the risk of allowing a cold to run on to more serious proportions. Should a cold gain headway, the rest in bed should be prolonged for several days in the hope of averting further damage to the body defenses by the development of purulent rhinopharyngitis and sinusitis. Prolonged bed rest is also important in multiple sclerosis. Favorable results have been observed in cases in which prolonged rest was applied at the beginning of the illness. Climate also is a factor in the maintenance of optimal health in multiple sclerosis. This is not a question of mere warmth, however, nor is it altogether a question of more sunlight. Probably the less strenuous tempo of existence in the southern countries acts favorably. Long term study of patients with multiple sclerosis indicates that prolonged rest is the one most important factor in the early treatment of the condition, and that a warm climate with freedom from upper respiratory infections is the best insurance against further crippling recrudescences of the disease.

New Jersey Medical Society Journal, Trenton

41:1-34 (Jan.) 1944

- Twenty-Five Years of Spinal Anesthesia: With Report of 1,020 Consecutive Cases. M. Joseph.—p. 6.
- Ménier's Syndrome, Migraine and Certain Related Conditions. M. Atkinson.—p. 11.
- Mapharsen, an Unusual Local Reaction. E. M. Satulsky.—p. 22.

41:35-74 (Feb.) 1944

- Breast Milk for Emergency Feeding. W. Ripley.—p. 43.
- Statistical Record of Experience with Breast Milk Bank. Ann L. Clark.—p. 45.
- Dr. George W. Campbell, 1748-1798. W. K. Campbell.—p. 47.

Psychosomatic Medicine, Baltimore

6:1-116 (Jan.) 1944

- Psychosomatic Medicine: Historical Perspective. G. Zilboorg.—p. 3.
- Dominance, Neurosis and Aggression. J. H. Masserman and P. W. Siever.—p. 7.
- Tuberculosis and Personality Conflicts. J. Hartz.—p. 17.
- Parallelism in Changes of Sensory Function and Electroencephalogram in Anoxia and Effect of Hypercapnia Under These Conditions. E. Gellhorn and H. Hailman.—p. 23.
- Electroencephalographic Studies in Asthma with Some Personality Correlates. S. Rubin and L. Moses.—p. 31.
- Effects of Injury to Cerebral Cortex on Sexually Receptive Behavior of Female Rat. F. A. Beach.—p. 40.

Wisconsin Medical Journal, Madison

43:1-196 (Jan.) 1944

- Part of Physician in Rationing. T. E. Fairchild.—p. 175.

43:197-280 (Feb.) 1944

- Fate of Practice of Medicine After War. A. M. Schwitala.—p. 213.
- Diagnosis of Early Myocardial Failure. C. C. Maher.—p. 219.
- Diagnosis and Treatment of Rheumatic Fever. P. S. Rhoads.—p. 222.
- Primary Atypical Pneumonia (Virus Pneumonia). R. C. Schmitz.—p. 228.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1:69-104 (Jan. 15) 1944

Clinical Features and Treatment of Malaria in British Troops in West Africa. S. B. Hughes and R. R. Bomford.—p. 69.

*Despeciated Bovine Serum: Substitute for Human Plasma. F. R. Edwards.—p. 73.

*Treatment of Anemia in School Children with Iron and Ascorbic Acid. L. S. P. Davidson and G. M. M. Donaldson.—p. 76.

*Influence of Supplements of Vitamins A, B₁, B₂, C and D on Growth, Health and Physical Fitness. E. R. Bransby, J. W. Hunter, H. E. MaGee, E. H. M. Milligan and T. S. Rodgers.—p. 77.

Umbilical Hernia in Children, with Special Reference to Injection Treatment. M. J. Bennett-Jones.—p. 78.

Despeciated Bovine Serum: Substitute for Human Plasma.—Edwards states that bovine serum can be made safe for man by destroying the antibodies by heating to 72 C., while rendering the proteins uncoagulable with the addition of 0.2 per cent of formaldehyde and ammonia. Clinical trial in 26 cases showed that it can be administered rapidly and in large amounts to man with safety.

Iron and Ascorbic Acid for Anemia in School Children.—According to Davidson and Donaldson, investigations into the hemoglobin levels of large numbers of persons in different areas of Great Britain have demonstrated the frequency with which anemia occurs in infants, school children and women both pregnant and nonpregnant. The anemia is almost universally of the hypochromic type, which responds excellently to iron therapy. Administration of iron in doses of approximately one third of that usually prescribed for curative treatment can significantly improve the hemoglobin levels of school children. This suggests that the hypochromic anemia of these children is mainly conditioned by an insufficiency of iron in the diet. A supplement of 25 mg. of ascorbic acid daily had no effect in raising the hemoglobin levels.

Influence of Vitamins on Growth and Fitness.—Bransby and his associates give a summary of a vitamin feeding test carried out between November 1941 and August 1942 on 1,400 school children and adults. The aim was to ascertain whether a supplement of synthetic vitamins to the ordinary diet would improve growth, health and physical efficiency. Each capsule contained 4,000 international units of vitamin A, 333 international units of thiamine, 2 mg. of riboflavin, 1,000 international units of ascorbic acid, 20 mg. of nicotinamide and 600 international units of vitamin D. The school children were examined before, during and after the period of feeding. They were divided into two equal groups; one group received a vitamin capsule every school day and the other a capsule containing a similar quality of arachis oil, which is practically devoid of vitamins. The factory tests were conducted at zinc smelting works, where the labor is extremely strenuous and exhausting. In the children it was found that the vitamins had no statistically significant effect on the rate of growth, nutritional status, muscular strength, condition of the teeth and gums or absence from school on account of illness. In the factory tests on 214 adult men the results showed that the vitamin capsules had no significant effects on weight, hemoglobin, blood pressure, absence from illness or output of material.

Praxis, Basel

32:363-382 (May 20) 1943

*Boeck's Disease. W. Berblinger.—p. 363.

*Symptomatology, Causes and Therapy of Spontaneous Pneumothorax. W. Küchler.—p. 365.

Lungs and Cancer of Lung. H. Tecoz.—p. 368.

Boeck's Disease.—Berblinger states that Boeck's sarcoid, or miliary lupoid, had been designated by Besnier as lupus pernio. The cutaneous lesions, which at first are light red, circumscribed or diffuse, later become bluish red and hard infiltrations. They may heal, leaving no traces. Microscopic examination discloses at first collections of lymphocytes around the vessels in the stratum papillare. Later circumscribed foci of epithelioid cells develop. Proliferation of epithelioid cells with a few giant cells and subsequent hyaline sclerotization

but without caseation are the essential features of the pathologic process. The same tissue reactions are found also in the mucous membranes, lymph nodes, spleen, liver, bone marrow, lungs, epididymides, kidneys, central nervous system, conjunctiva, iris, hypophysis and lymph nodes. This shows that the process is generalized, a fact that was emphasized by Schäumann, who designated the condition as benign lymphogranulomatosis. It is now known that Boeck's miliary lupoid, Heerfordt's uveoparotitis, the multiple cysticosteitis of Jüngling and certain forms of generalized swelling of lymph nodes, of splenomegaly, of iridocyclitis and of pulmonary changes with predominant involvement of the hilus are merely different localizations of a nosologic unit. The author gives particular attention to the pulmonary changes which predominated in a case which he observed post mortem. Pulmonary involvement usually begins with enlargement of the lymph nodes in the hilus region. This is followed either by a miliary dissemination or by the formation of larger foci, which subsequently may disappear. Increasing sclerotization of foci in the bronchial mucosa may lead to dyspnea. Stasis in the pulmonary circulation is possible if vessels become throttled by extensive sclerotization of pulmonary tissue. In general, pulmonary symptoms are slight. The formation of pleural foci may give rise to piercing pains in the chest. The author succeeded in isolating tubercle bacilli of the human type from guinea pigs which he had inoculated with tissue from the aforementioned patient. His reviews observations that have been cited for and against a tuberculous etiology of Besnier-Boeck-Schaumann's disease. He believes that it is a form of tuberculosis even though it may be regarded as atypical.

Spontaneous Pneumothorax.—Küchler states that within a comparatively short time spontaneous pneumothorax may produce threatening symptoms such as piercing thoracic pain, angor, severe dyspnea, cough, pain in the epigastric region and cyanosis. In other cases pneumothorax is hardly noticeable; the patient is at the most somewhat dyspneic. Sometimes spontaneous pneumothorax is discovered accidentally in the course of a roentgenoscopy, and in other cases it may remain unrecognized. Diagnosis can be based on the loud percussion sound, greatly decreased or completely lacking respiratory sounds, enlargement of the involved half of the chest, smoothing over of the intercostal spaces, differences in form and movement of the two halves of the thorax and lessening of the voice fremitus over the pneumothorax. Percussion often reveals shifting of the heart and mediastinum. The percussion sound has a decidedly tympanic overtone as long as the air in the pneumothorax is not under great pressure. As the pressure increases, the percussion sound becomes more like that over a normal lung. Respiratory and heart sounds are usually weak. Amphoric respiratory sounds are often typical of pneumothorax, but they occur also in the presence of large cavities. Metallic sounds are likewise frequent in pneumothorax. Roentgenoscopy gives the most conclusive evidence of pneumothorax. If severe dyspnea and cyanosis exist, relief must be provided at once by insertion of a hollow needle anteriorly into the first or second intercostal space. If dyspnea recurs soon, the needle must be left in situ. A valve that permits escape but prevents external intake of air can be improvised from a rubber finger-stall. The patient should be hospitalized as soon as it is possible to transport him. If dyspnea continues to return after repeated withdrawal of air, it is best to introduce a permanent cannula with valve. Dyspnea as well as cough must be suppressed by medication with a combination of morphine and atropine. The patient should be kept in the sitting posture, and roentgenologic observation should be continued. It has been advised that the pneumothorax be continued for from six to nine months after closure of the pleuropulmonary fistula. After the pneumothorax has been absorbed, the patient should be advised to avoid sudden movement and the lifting of heavy loads. In case of spontaneous pneumothorax on a tuberculous basis, a prolonged pneumothorax treatment becomes necessary so that the subpleural tuberculous changes may have a chance to heal. Emphysema blisters may be treated by touching them with the cautery under thoracoscopic guidance. Traumatic pneumothorax in the war wounded demands that the wound be closed in order to avoid further inrush of air.

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OCCUPATIONAL CONTACT DERMATITIS AMONG AIRCRAFT WORKERS

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SANTA MONICA, CALIF.

The terms "dural poisoning," "aluminum poisoning" and "metal poisoning" are used ill advisedly not only by aircraft workers and their families but also by the overwhelming majority of physicians who care for these occupational groups. The assumption that the majority of dermatoses among aircraft workers is due to aluminum or dural has led to many unwise and unwarranted transfers from one department of an aircraft plant to another as well as numerous unnecessary complete changes of occupation. It is my purpose in this report to clarify the approach to the subject of contact dermatitis among aircraft workers, with special reference to the identification of the contact substances most commonly at fault.

There seems to be a dearth of practical information regarding this problem in medical literature in the English language, and there is a total lack of statistical treatment of the subject. Oil folliculitis, or chloracne, is the only industrial dermatosis of major importance to the aircraft industry on which adequate studies have been published.¹ The present report, concerning itself primarily with contact dermatitis, will not deal with oil folliculitis, therefore.

MATERIAL

The clinical material on which this report is based consists of 755 employees of the Santa Monica and El Segundo plants of the Douglas Aircraft Company, Inc., who were referred to the "skin clinic" of this company during the seven months period between March 19, 1943 and Oct. 19, 1943. The skin clinic is a service furnished by the aforementioned employer for the diagnosis and treatment of cutaneous diseases of industrial origin occurring among the employees. The dermatologist spends several hours per week on each of the three shifts in the Santa Monica plant (approximately 45,000 employees) and on the day shift at the El Segundo plant (approximately 20,000 employees). Any employee with a dermatologic condition suspected of being occupational in origin by the employee or the foreman, the supervisor, the regular industrial medical staff or the outside private medical

adviser (if the latter so desires) is referred to this clinic and is given an appointment to be seen by the dermatologist at the plant during the employee's regular working hours. Because the El Segundo plant was visited by the dermatologist only during the day shift, many of the cases at that plant were not worked up as completely or followed as satisfactorily as those at the Santa Monica plant; in several of the analyses to follow, therefore, the El Segundo figures will be omitted from consideration.

UNCLASSIFIED CASES

Immediately deductible from the total registered at the clinic are 80 Santa Monica cases and 95 El Segundo cases (total 175) which were unclassified for one or more of the following reasons: A tentative diagnosis was made, but the patient did not return for application of or observation of patch tests; no diagnosis was made, and the patient did not return for further study; the cutaneous lesions complained of disappeared before being seen by the dermatologist or before a definite diagnosis was made, or the patient left the employ of the company before a definite diagnosis could be arrived at.

CASES OF NONINDUSTRIAL ORIGIN

Of the 580 cases in which a diagnosis was established, 210 (Santa Monica 139 and El Segundo 71) were not of occupational origin, i. e. 36.2 per cent of all cases classified. Table 1 indicates the breakdown of these nonindustrial cases. In this table the heading "Contact Dermatitis" includes all cases of dermatitis due to non-occupational contacts, such as plants, fingernail lacquer and other cosmetic preparations, soaps and bleaches in the laundering of clothing, toilet soaps and local applications made at home; "Dermatophytosis" includes mycotic infections of the feet or the hands, dermatophytids, monilial infections and tinea circinata; "Dyshidrosis" refers to dyshidrosiform eruptions of the sides of the fingers and hands fluctuating with relation not to type or time of work but to weather, temperature and nervous tension. The other headings need no explanation.

CASES OF INDUSTRIAL ORIGIN

The cases determined to be of industrial origin totaled 370 (63.8 per cent of all cases classified). In 21 of these the condition was folliculitis caused by contact with oil and did not differ in clinical appearance or response to therapy from that condition as described in many excellent articles on the subject.¹ These cases (5.7 per cent of all cases of dermatosis determined to be industrial) will not be discussed further than to point out the low incidence of folliculitis due to contact with oil in a plant where cutting oils are used by many workers of both sexes operating machine tools.

Of the 349 cases of contact dermatitis of industrial origin remaining for consideration, 147 were studied

This paper, in a symposium on "Wartime Industrial Dermatoses," is published under the auspices of the Section on Dermatology and Syphilology.

1. Schwartz, Louis, and Russell, J. P.: Skin Hazards in Airplane Manufacture, Pub. Health Rep. 56: 1581-1593 (Aug. 8) 1941. Schwartz, Louis: Dermatitis from Cutting Oils, *ibid.* 56: 1947-1953 (Oct. 3) 1941; Industrial Dermatitis in Our War Industries, *Indust. Med.* 11: 457-462 (Oct.) 1942. Schwartz, Louis, and Barlow, F. A.: Chloracne from Cutting Oils, Pub. Health Rep. 57: 1747-1752 (Nov. 20) 1942. Leggo, Christopher: Cutting Oils and the Skin, *Indust. Med.* 12: 102-108 (Feb.) 1943.

at the El Segundo plant; as was previously set forth, a significant proportion of these cases were not well enough classified and followed up to warrant their being thrown together with the Santa Monica group for statistical analysis. For the purposes of the present study, at least, the El Segundo group will be omitted from further consideration, leaving the 202 cases at the Santa Monica plant for analysis. It may be said, however, that the El Segundo cases closely paralleled the Santa Monica cases in all respects. The main reasons for omitting them are (1) that, because of unsupervised patch testing and reading, many apparently multiple sensitivities were reported which were not borne out by subsequent experience and (2) many patients did not return for reexamination after therapeutic transfer to a different department, so that the validity of the diagnosis could not be checked.

The 202 cases of occupational contact dermatitis which will be subjected to special study fall into five groups, according to the causative contact factors involved: the zinc chromate primer, 132 cases (65.3 per cent); dural, 10 cases (5 per cent); aluminum,

TABLE 1.—Two Hundred and Ten Cases of Dermatoses of Nonindustrial Origin Encountered Among 580 Cases Definitely Classified (36.2 per Cent)

Contact dermatitis.....	30	Lupus erythematosus.....	3
Insect bites.....	26	Herpes zoster.....	3
Dermatophytosis.....	24	Flexural eczema.....	2
Scabies.....	16	Nummular eczema.....	2
Dyshidrosis.....	15	Erythema multiforme.....	2
Seborrheic dermatitis.....	11	Neurotic excretions.....	2
Pityriasis rosea.....	11	Pyoderma.....	2
Psoriasis.....	8	Intertrigo.....	1
Leichen simplex chronicus.....	6	Pruritus senilis.....	1
.....	6	Icterus.....	1
Impetigo contagiosa.....	5	Tuberculosis miliaris faciei.....	1
Herpes simplex.....	5	Erythema figuratum pustans.....	1
Urticaria.....	5	Callus.....	1
Granuloma annulare.....	5	No diagnosis established (but definitely nonindustrial).....	6
Drug eruptions.....	5		
Leichen planus.....	4		

4 cases (2 per cent); other identified occupational contacts, 47 cases (23.2 per cent); unidentified but apparently occupational contacts, 9 cases (4.5 per cent). These groups will be considered under separate headings.

DERMATITIS DUE TO CONTACT WITH ZINC CHROMATE PRIMER

Zinc chromate primer is probably the most ubiquitous substance in an aircraft plant; it is a dull green coating with which most metal sheets and parts are covered from the time they enter the factory until the finished plane comes out ready for its final coat of camouflage paint. All workers who apply or remove this primer or who cut, file, burr, countersink or drill through metal coated with it are exposed to it as an occupational hazard. Furthermore, apparently unconcerned bystanders, such as janitors sweeping up the shavings, inspectors near whom the aforementioned operations are being carried out, workers repairing tools, such as drill motors and rivet guns which contain primer coated drillings, are sufficiently exposed to be sensitized. After an employee has become sensitized, even the most indirect contacts may be sufficient to initiate a flare-up of the dermatitis; one patient was encountered whose

dermatitis continued in severe form in spite of absence from work until his wife, who was a riveter, not sensitive to the primer, was transferred to a job where she no longer got any primer coated drillings in her hair and on her clothing.

Sensitivity to the primer is determined by patch testing with a dime size metal disk coated with the primer

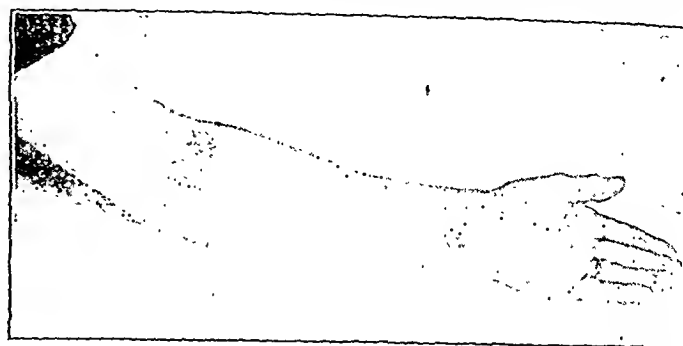


Fig. 1.—Erythematous patches on the flexor surface of the wrist and in the cubital fossa, typical of sensitivity to zinc chromate.

in question (sprayed on in the paint shop and allowed to dry for at least several days): The disk is routinely placed against the skin of the inner-anterior surface of the left upper arm; it is covered by a gauze square of several layers thickness, a little larger than the disk, and the whole is made fast with adhesive tape. This patch test is removed at the end of twenty-four hours and a preliminary reading recorded as the "twenty-four hour reading"; twenty-four hours later the "forty-eight hour reading" is recorded, and a "seventy-two hour reading" is recorded whenever possible. A plus-minus (\pm) reaction represents a very faint but distinctly visible change in the area of skin which was in direct contact with the test material; a 1 plus reaction represents an unmistakable erythematous but impalpable reaction delineating the area of actual contact with the test material. A 2 plus reaction shows erythema with palpable elevation in the form of a plaque or an aggregation of papules. A 3 plus reaction indicates vesiculation, while a 4 plus reaction is a frankly denuded area representing the site of contact.

Of the 132 employees proved to be sensitive to the primer, only 4 (3 per cent) failed to give at least a 1 plus reaction to patch tests with the primer coated



Fig. 2.—Erythematous papular aggregations on the ulnar side of the forearm. The upper arm shows a 1 plus reaction to a zinc chromate disk, surrounded by scattered papular dermatitis from adhesive tape.

disk. Of the many employees with nonindustrial cutaneous eruptions who came in contact with the primer in their work and were patch tested with the disk for various reasons, only 1 showed as much as a 1 plus false positive reaction (this patient had scabies, which cleared after routine antiscabetic treatment; he continued to be exposed to the primer without dermatitis

developing). The dependability of the patch test with the primer coated disk is thus seen to be of a high order.

Sensitivity to the Ingredients of Zinc Chromate Primer.—After considerable experience with many persons who reacted to these disks and with a few who did not react to the disks but nevertheless were affected on contact with the primer, as indicated by their clinical behavior, a study of sensitivity to the ingredients of the primer was attempted. The primer in question (an Army and Navy specification) is a suspension of finely divided zinc chromate powder and manganese silicate in a solution of certain resins in xylene; these include a phenol-formaldehyde resin, a natural resin and a phthalic anhydride. The identities and proportions of the ingredients will not be published here; suffice it to say that for patch testing purposes the zinc chromate powder was mixed with calcium carbonate, and each of the resins was put into xylene solution in the concentration in which each is found in the liquid primer. No patch tests were made with manganese silicate. Xylene 60 per cent in olive oil was used as a control but only if all patch tests with the resins in xylene were positive; no positive reactions to this control substance

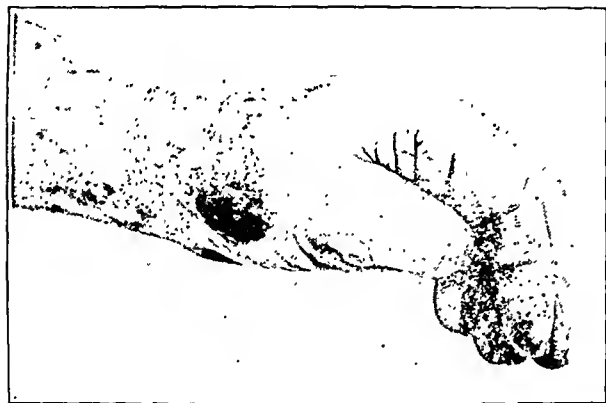


Fig. 3.—Nummular eczematous plaque on the dorsum of the base of the thumb typical of sensitivity to zinc chromate.

were encountered. It was realized that patch testing with these ingredients in the concentrations found in the liquid primer would not give a true parallelism with exposure to these substances on dry drillings and other materials; the results of the tests in these concentrations, however, proved quite satisfactory as to "sensitivity and specificity."

By the use of patch tests with the aforementioned substances the employees with "zinc chromate dermatitis" could immediately be divided into two distinct groups, each with its own clinical characteristics and prognosis. By far the largest group was composed of those who were sensitive to the zinc chromate pigment only; the other consisted of persons sensitive to one or more of the resins whether also sensitive to the zinc chromate pigment or not.

(a) **Sensitivity to Zinc Chromate Pigment Only:** Of the 132 persons with dermatitis due to contact with the primer, 90 (68 per cent) were sensitive to the zinc chromate pigment only. The cases of sensitivity in this group present certain characteristics which make them clinically distinguishable from cases of other types of contact dermatitis, as follows:

1. The duration of exposure to the substance before onset of symptoms or signs is long. The average length

of exposure before the appearance of the eruption was seven months. Eighteen cases of over one year's exposure averaged two years of contact before evidence of sensitivity became apparent; in 1 instance the period was nine years. On the other hand, there were only 10 patients in this group who showed evidence of sensitivity within one month of first exposure: 5 of these gave

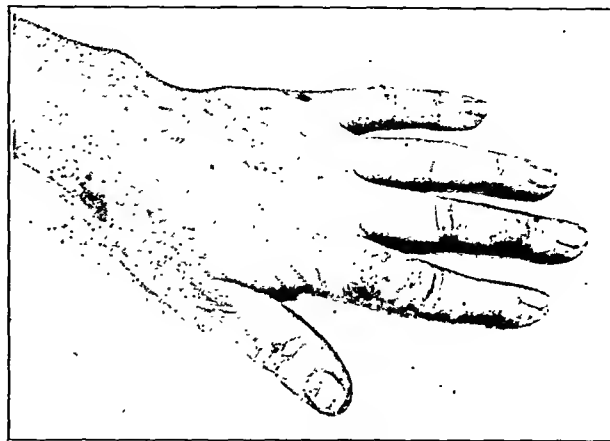


Fig. 4.—Erythematous patches on the dorsa of the fingers, typical of sensitivity to zinc chromate (same patient as in figure 3).

the duration of exposure as one month, 2 as two weeks, and 2 (2 per cent) as one week. One of the latter suffered from preexisting atopic dermatitis, while another was subject to asthma.

2. The distribution of the lesions of the skin is quite characteristic. In order of frequency the sites are the radial and flexor aspects of the wrists (fig. 1), the dorsal aspects of the proximal portions of the thumbs (fig. 3), the volar and ulnar aspects of the forearms (fig. 2), the dorsal aspects of the hands and fingers (fig. 4) and occasionally the ankles at the "short sock level." Rarely the "V of the neck" or the base of the neck posteriorly or laterally is involved; as a rule, this distribution is seen only in workers who drill overhead. One important exception to the pattern of distribution just set forth is that in Negro workers sensitive to zinc chromate pigment only (4 in this group) the eyelids, the sides and the front of the neck and the cubital fossae are invariably affected. No involvement of eyelids was

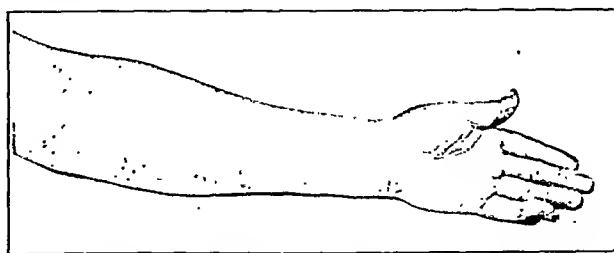


Fig. 5.—Faint papulosquamous aggregations on the flexor surface of the forearm, typical of zinc chromate sensitivity, and erythema of the radial side of the cubital fossa, typical of sensitivity to resins in the primer to which this patient was also sensitive (same patient as in figures 3 and 4).

encountered in white workers unless sensitivity to resins was also demonstrated.

3. The morphologic character of the eruption is rather constant. Nummular eczematous plaques or groups of papules are the rule. The plaques begin as ill defined erythematous "blotches," usually seen on the flexor

aspects of the forearms and the radial sides of the wrists, later becoming slightly elevated and squamous and finally exhibiting numerous denuded points which give rise to serous crusting; similar lesions are frequently seen on the dorsal aspects of the hands and fingers. The papular aggregations begin as rather loosely



Fig. 6.—Erythema and thickening of the upper eyelids, typical of sensitivity to resins in the primer (same patient as in figures 3, 4 and 5).

grouped tiny pale pink papules, usually seen on the dorsal aspects of the hands and the dorsoradial aspects of the wrists and in the cubital fossae; the papules in these groups then become larger and more numerous, finally forming papulosquamous plaques, which rarely exhibit crusting. A generalized erythema of the involved areas is not often encountered, and the papules are practically never scattered except in the skin of Negroes, where scattering is the rule. The plaques and papular groups vary in size from 1 to 6 cm. in diameter and tend to be round and fairly definitely margined.

(b) Sensitivity to resins only: Seventeen employees (13 per cent of those with dermatitis due to contact with the primer) were found to be sensitive to one or more of the resin ingredients of the primer but not to the zinc chromate pigment. The dermatitis in this group was sufficiently uniform in its characteristics to form a separate clinical entity from that previously described.

1. The average duration of exposure before onset of symptoms is only slightly less than the average quoted for the preceding group, but in 3 cases (18 per cent) it was less than one week.

2. The distribution is constant. The eyelids were affected in all cases (figs. 7 and 8), and the sides of the upper two thirds of the neck (fig. 9) and the cubital fossae in the great majority. The hands and fingers were affected in only 1 case, and the wrists and forearms in only 6.

3. In morphologic character the eruption is distinct from that due to the zinc chromate pigment alone. The dermatitis of the eyelids begins as a faint erythema, soon followed by slight swelling, which usually gives way to thickening with accentuation of the folds as the color becomes dull red; the lower lids become involved later and less severely. The dermatitis of the sides of the neck frequently appears as oval, dull red, finely squamous, palpable plaques whose long axes parallel the "lines of cleavage" of the skin as in pityriasis rosea (fig. 8). When the cubital fossae are involved, there is a poorly bordered erythema at their lateral limits (fig. 5); the radial aspects of the forearms and wrists are occasionally affected in a similar manner.

To obtain a closer estimate of the frequency of sensitivity to resins alone, 6 cases should be added (already included in the 132 due to contact with the primer, the skin reacting to the primer coated disk) which showed all the characteristics of dermatitis due to resins alone but which were seen before patch testing with the ingredients was instituted. This would raise the incidence of sensitivity to resins alone from 13 to 17 per cent of the total number of cases of dermatitis due to contact with the primer.

(c) Sensitivity to zinc chromate and resins: Nineteen employees (15 per cent of those with dermatitis following contact with the primer) proved sensitive to one or more of the resins as well as to the zinc chromate pigment. It is interesting to note that the clinical picture presented by the patients of this group was exactly what one would expect to obtain by superimposing one of the dermatitis types described on the other. These patients all showed erythema or thickening of the eyelids or both in addition to erythematosquamous plaques or papular aggregations on the fingers, hands, wrists or forearms (figs. 3, 4, 5 and 6). Several of them also showed erythema of the center of the face and, in women, excoriations between the breasts and across the anterior upper part of the chest and the shoulders.

Importance of Identifying the Causative Ingredient.—No evidence of development of tolerance to either the zinc chromate or the resins, once an employee is sensitized, has been observed. In fact, the opposite appears to be the rule: Once sensitivity manifests itself, it is more likely to increase in degree with exposure than to remain constant. If preventive measures in the form of protective clothing or local applications are not immediately successful (and they usually are not), prompt transfer to a job remote from the sensitizing substance is imperative. Although it is not within the scope of



Fig. 7.—Erythema and thickening of the eyelids, typical of sensitivity to resins in the primer, without involvement of forearms. The left upper arm shows a 2 plus reaction to a zinc chromate disk while the right upper arm shows 1 and 3 plus reactions to resins. A patch test with zinc chromate alone was negative.

this report to deal with the complications of satisfactory placement of sensitized persons, several important factors may be pointed out.

The majority of persons who are sensitive to the zinc chromate pigment are sensitive also to other chromates and to chromic acid. They cannot, therefore,

be expected to do well in anodizing or working on anodized metals (chromic acid), aluminum tubing or cadmium plated parts (which have usually been rinsed in chromic acid), or in working with certain sealing compounds or cements which contain zinc chromate as an anticorrosive, or in lithographing or blue printing



Fig. 8.—Acute erythema and swelling of the eyelids with pityriasis rosea-like plaques on the neck—a typical example of sensitivity to resins in the primer. This patient reacted to all three resins, was nonreactive to zinc chromate alone, and did not show a positive reaction to the zinc primer coated disk until seventy-two hours after removal of the disk.

(in which potassium dichromate is used); some cannot even work with steel of high chromium content without relapse of their dermatitis. The worker who must avoid primer-coated metals because of sensitivity only to the resins is not affected by the foregoing prohibitions, but he must not be transferred to a job where he will be required to work micarta, bakelite, plexiglass and other resinous substances. An ill considered transfer may not only cause the worker additional discomfort and disability but cause him to quit his job; furthermore, repeated experimental transfers are expensive to the employer and are bound to slow production.

DERMATITIS DUE TO CONTACT WITH DURAL

Dural is an alloy of aluminum 95 to 95.5 per cent, copper 3.5 to 4 per cent, manganese 0.5 per cent, magnesium 0.5 per cent and traces of iron and silicon. In view of its high aluminum content one would expect the dermatitis caused by contact with this substance to be similar to that caused by aluminum; this, however, is not the case, as sensitivities to the two metals are entirely distinct. Dural is much stronger than aluminum and is used in those parts of the plane where additional strength is needed. "Alclad," incidentally, is sheet dural covered with a layer of aluminum.

Lounsberry² in 1939 found "an infected fish oil-dural combination" to be "the main causative factor" in der-

matitis in the aircraft industry; dermatitis attributable to this contact was not encountered in this series of cases.

Of the 202 cases of contact dermatitis of occupational origin, 10 (5 per cent) were determined to be due to dural. Each of the affected employees showed a persisting 1 plus or 2 plus reaction to patch tests of dural drillings (forty-eight or seventy-two hour reading). A doubtful or 1 plus reaction to drillings of any metal which disappears within twenty-four hours after removal of the patch test is inconclusive because the pointed and angular particles will sometimes evoke pinkness of the skin by pressure against it. It may be pointed out that care must be exercised in the selection of the drillings used for patch testing: they must be obtained from metal which has not been painted, oil coated or anodized (chromic acid).

The dermatitis caused by dural drillings, filings or grindings in sensitive persons is as a rule clinically distinguishable from that due to contact with primer:

1. The duration of exposure before evidence of sensitization appeared averaged 5.4 months; in no case observed was it longer than eight months or shorter than one month.

2. Some aspect of the forearms was involved in all cases, but the flexor aspect of the wrists in only 1; the sides of the neck were affected in half the cases, but the front of the neck in only 1. The eyelids



Fig. 9.—Same patient as in figure 8.

showed slight thickening in only 2 cases. No cases were observed in which the hands or the fingers were involved.

3. Morphologically, the eruption is characterized by scattered pale pink fine papules, usually excoriated (fig. 10). The excoriations are of the pinpoint fine, sanguineous crusted type so often associated with scabies; in fact,

2. Lounsberry, C. R.: Occupational Dermatoses in the Aircraft Industry, California & West. Med. 51: 309-313 (Nov.) 1939.

in 2 cases the fine excoriations were present without definite papules, but in 1 case erythema was the only finding.

DERMATITIS DUE TO CONTACT WITH ALUMINUM

Only 4 cases (2 per cent of the 202 cases due to occupational contacts) proved to be due to aluminum dust, filings, burrings and like products; each of the

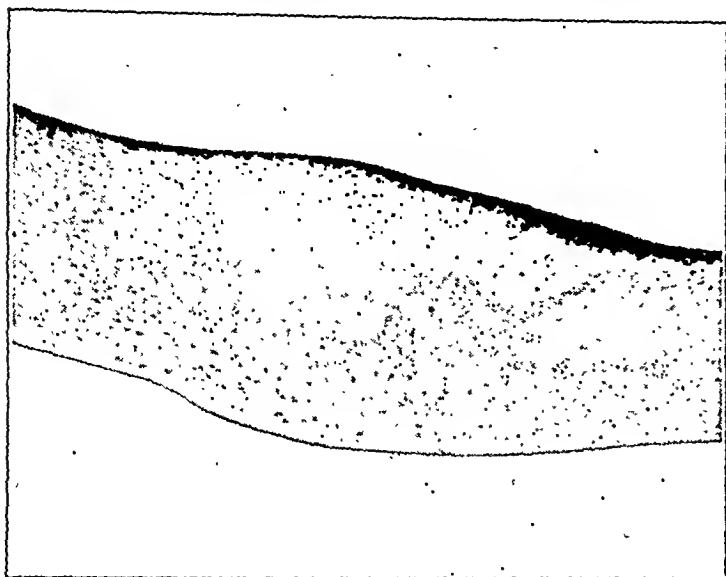


Fig. 10.—Typical example of contact dermatitis due to dural shavings and drillings. The papular nature of the eruption is in obvious contrast to the plaquelike nature of dermatitis due to zinc chromate.

patients showed a persisting 1 plus reaction to aluminum filings. The eruption was fairly characteristic:

1. The duration of exposure before onset of the dermatitis averaged 4.5 months; in 2 cases this period was only three weeks, and in 1 eleven months. The onset of symptoms is usually rather sudden.

2. The flexor surfaces of the forearms and wrists were affected in all cases, and the front of the face and neck in 1. No other areas were observed to be involved except the lower parts of the legs and the ankles (1 case).

3. In morphology this eruption is quite different from the others described, being comparatively evanescent. The lesions themselves tend to be wheal-like and suggest insect bites but are without central puncta, of course. In general the lesions are more erythematous than those from other contacts, particularly immediately after work, but may disappear entirely within twenty-four hours away from work.

CONTACT DERMATITIS WITH MULTIPLE SENSITIVITIES

All employees coming in contact with primer, dural and aluminum were patch tested to these three substances routinely, usually before being seen by the dermatologist. Some of them reacted definitely to more than one of the test materials. A few of these employees could be shown to be truly sensitive to more than one of the substances in the light of the subsequent behavior of their skin in different jobs, but most of them were transferred to jobs away from all substances causing reactions or left the employ of the company and could not be checked. The classification of their cases was made according to the clinical characteristics.

Of the 132 persons whose dermatitis was considered to be due to contact with primer, 5 (3.7 per cent) reacted positively to dural, 3 (2.2 per cent) to aluminum and 4 (2.9 per cent) to both. Of the 10 persons with dermatitis considered to be caused by dural, 2 gave

persisting doubtful reactions to the primer coated disk, and 1 reacted positively to the disk and to aluminum. Of the 4 persons whose dermatitis was considered to be due to aluminum, 1 reacted positively to dural as well.

In summary, 16 employees (10.9 per cent) of the 146 who had dermatitis due to the three routinely tested substances reacted positively to more than one; of these, 5 (3.6 per cent) gave positive reactions to all three.

CHARACTERISTICS COMMON TO CUTANEOUS ERUPTIONS DUE TO CONTACT WITH PRIMER, DURAL AND ALUMINUM

The four types of dermatitis described in the foregoing sections have several characteristics in common:

1. They are all pruritic and as a rule itch more severely as the work day progresses and most severely after work, particularly if the employee goes to bed soon after returning home from work. The itching has usually subsided somewhat by the beginning of the next work day (unless dermatitis is severe).

2. The symptoms and signs of the dermatitis usually subside over week ends off work, and even severe forms show definite improvement after one week away from the sensitizing substance. Complete recovery is the rule after one to four weeks' freedom from contact with the offending substance; if this does not take place, it is probable that the employee is still coming into contact with it (at home, in clothing or in his new working environment). Superficial fractional x-ray treatments may hasten recovery, particularly in severe or chronic cases, but as a rule they are not necessary.

3. Systemic symptoms have not been observed in any of the cases comprising this study.

DERMATITIS DUE TO MISCELLANEOUS OCCUPATIONAL CONTACTS

Of the 202 cases of dermatitis due to occupational contacts, 47 (23.2 per cent) were caused by substances proved to be other than primer, dural or aluminum. The most common sensitizing factor in this group was the soap powder which most of the workers used in washing up at the plant; this was the causative factor in 9 cases of dry, scaly, pale pink dermatitis of the

TABLE 2.—Forty-Seven Cases of Dermatitis Due to Industrial Contact with Substances Other Than Zinc Chromate Primer, Dural and Aluminum

Powdered soap (hand wash)...	9	Black stencil dye.....	1
Spun glass.....	7	Layout dye.....	1
Sawdust (different woods)....	3	Dope.....	1
Kelite (soap solution for washing aluminum tubes).....	2	Dope remover (acetate).....	1
Magnaflux solution (kerosene with iron oxide).....	2	Neoprene gloves.....	1
Paint stripper.....	2	Sponge rubber (in mask).....	1
Paint thinner.....	2	"Hydrocal" (a proprietary casting plaster).....	1
"Bronze green lacquer".....	2	Lead.....	1
Butesin pierate ointment.....	2	16% sulfuric acid.....	1
Cleaning solvent.....	1	D72 photo developer.....	1
O. D. camouflage paint.....	1	Caustic soda (sodium hydrate) solution.....	1
Turpentine.....	1	Chronic acid (ulcers).....	1
"Protek".....	1		

hands, some with fissure formation. Spun glass, which is used as an insulating material against cold and sound, accounted for 7 cases of rather transitory erythema of the volar and ulnar aspects of the forearms and sometimes the sides and the front of the neck, accompanied by more or less generalized itching; the erythema clears up as the worker develops tolerance to the mechanical irritation exerted by the fine hard particles (no positive reactions were elicited by patch tests).

The other occupational causes of contact dermatitis, some sensitizers and some primary irritants, were not encountered with sufficient frequency to justify discussion of each. For the sake of completeness they are listed in table 2.

DERMATITIS DUE TO UNIDENTIFIED OCCUPATIONAL CONTACTS

Nine cases of contact dermatitis were encountered in which the causative agent could not be identified by patch tests but which were apparently of occupational origin. The dermatitis cleared when the patient remained away from work and recurred promptly on his return to work; if he remained in the employ of the company, the skin remained free from the eruption after a change of job. The inability to identify the causative agent was in some cases due to lack of cooperation on the part of the employee who suffered from the dermatitis; in others, either the right substances were not suspected or patch testing was not indicative.

In connection with this subject a warning is in order: There are many primary irritants used in the aircraft industry which cannot safely be used for patch testing without appropriate dilution; any unfamiliar substance should be thoroughly investigated before being applied in a patch test, for disabling and disfiguring reactions are possible.

SUMMARY AND CONCLUSIONS

Approximately one third of all dermatologic cases studied in an industrial clinic for employees with diseases of the skin in a large aircraft manufacturing plant were found to be nonoccupational in origin.

"Dural poisoning," "aluminum poisoning" and like expressions have been popularized by aircraft workers and threaten to find their way into medical parlance as haphazard diagnoses. In the series of 202 cases of occupational dermatitis subjected to analysis in this report, only 5 per cent were found to be due to dural and only 2 per cent to aluminum.

Zinc chromate primer was found to account for the great majority of cases of occupational contact dermatitis in the aircraft industry as presented by the Douglas Aircraft Company. The cases identified as caused by ingredients of this substance totaled 132 (65.3 per cent of all cases of dermatitis from occupational contacts). Of these, 68 per cent were due to the zinc chromate in the primer, 17 per cent were due to one or more of the resin ingredients and 15 per cent were due to both.

The clinical characteristics of the dermatitis caused by sensitivity to, plus contact with, each of the aforementioned substances are sufficiently true to type to make a tentative specific diagnosis possible; the specificity of patch tests with each of these substances is sufficiently high to confirm or disprove the vast majority of such clinical diagnoses.

A positive reaction to primer coated metal in the presence of dermatitis of the hands or arms or both but without involvement of the eyelids or the upper parts of the neck in a worker exposed to chromates or chromic acid indicates that the dermatitis is due to these substances; to clear such a dermatitis the worker will in all probability have to be transferred to a job where he will not come in contact with any of these sensitizing factors.

A positive reaction to primer coated metal in the presence of dermatitis of the eyelids, the upper parts of the neck and the lateral margins of the cubital fossae but without involvement of the forearms, hands or

fingers in a worker exposed to zinc chromate primer indicates that the dermatitis is due to one of the resinous ingredients of the primer, and although the worker will probably have to be transferred away from contact with zinc chromate primer, he is not sensitive to chromates in general but may be sensitive to synthetic resins such as bakelite or masonite.

A positive reaction to primer coated metal in the presence of dermatitis involving the hands, the arms, the neck and the eyelids in a worker exposed to zinc chromate primer indicates that the dermatitis is due to chromates and resins, and the worker will probably have to avoid both if complete clearing of the dermatitis is to be anticipated.

A positive reaction to dural (filings or other particles) persisting at least twenty-four hours after removal of the patch test in the presence of a scattered pale papular excoriated dermatitis of the forearms in a worker exposed to drillings, filings or burrings of that metal indicates that the dermatitis is due to dural, and the worker will have to avoid contact with it to achieve complete healing of the dermatitis.

A positive reaction to aluminum (filings or other particles) persisting at least twenty-four hours after removal of the test preparation in the presence of an evanescent erythematous urticar eruption involving the flexor surfaces of the wrists and forearms in a worker exposed to drillings, filings or burrings of that metal indicates that the dermatitis is due to aluminum, and the worker will have to avoid contact with that metal to achieve complete healing of the dermatitis.

No evidence of "acquired immunity," "increased tolerance" or "hardening" to contact with any of the aforementioned substances was noted. Sensitivity develops after a comparatively long period of exposure; once developed, it tends to increase rather than decrease. It is obvious, therefore, that preemployment patch testing in an effort to reduce the incidence of dermatitis due to these substances would be worthless.

There was no evidence in the present series of cases to indicate that dermatitis due to contact with the aforementioned substances will not heal spontaneously in a reasonable length of time after contact is terminated. In view of this tendency it is important that treatment be limited to such local applications as surely will not irritate and thus prolong the dermatitis. It is sometimes expedient to use superficial fractional x-ray therapy to hasten improvement, particularly when severe discomfort and/or disability are factors.

No evidence of systemic involvement due to contact with or inhalation of the mentioned substances was observed.

Twenty-five substances other than zinc chromate primer, dural and aluminum were identified as causative factors in the production of 47 cases of occupational contact dermatitis. Nine of these cases were due to soap. Seven were due to spun glass. Twenty-three other substances accounted for the remaining 31 cases in the group.

Nine cases of dermatitis were considered to be occupational in origin although the substance responsible for the dermatitis was not identified. This number represents only 4.5 per cent of the occupational cases, indicating that, if careful study brings to light no occupational contact which can be identified as causative, the presumption should be that the dermatitis is non-industrial in origin unless definite correlation with work is evident.

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DERMATITIS FROM EXPLOSIVES

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In times of peace explosives are not a large factor in the general causes of industrial dermatitis. In wartime, however, dermatitis from explosives is a serious problem to those concerned with the prevention of industrial diseases.

Explosives may be classified in the following manner: (1) propellants, used to propel projectiles, and (2) military high explosives, used for bursting charges and for setting off the more stable high explosives (fig. 1).

The propellants are smokeless powder and black powder.

The military high explosives are subdivided, the more stable explosives being used for bursting charges, and the sensitive explosives for primers, fuses, boosters and detonators. Sensitive explosives are tetryl, mercury fulminate, lead azide, lead styphnate, sensol and nitroglycerin. Stable explosives are trinitrotoluene (TNT), amatol, ammonium picrate (explosive D), lyddite

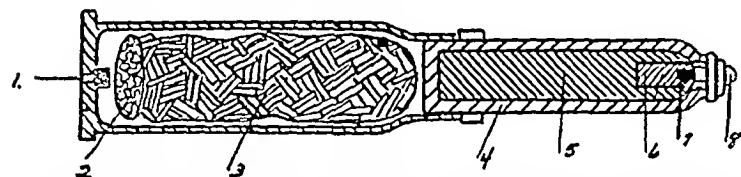


Fig. 1.—Diagram of a shell: 1. Primer (sensitive explosive). 2. Igniter—black powder. 3. Propellant charge (nitrocotton). 4. Projectile. 5. Bursting charge (TNT amatol). 6. Booster (tetryl). 7. Detonator (sensitive explosive). 8. Fuse (sensitive explosive).

(chiefly picric acid), pentaerythratoltetranitrate (PETN), hexite (hexanitrodiphenylamine) and dinitrotoluene (DNT).

TETRYL

Tetryl, or trinitrophenylmethylnitramine, is a light yellow crystalline powder. It is made by sulfonating dimethylaniline and then adding this to nitric acid. The tetryl is separated from the acid mixture and purified by recrystallizing from a solution of benzene or acetone. It is then taken to the drying chamber and dried.

Dermatitis caused by tetryl is probably the most frequent cutaneous hazard accompanying the manufacture of munitions. It occurs in the making of tetryl, especially in the drying house, where it develops in about 50 per cent of the workers; it occurs also in the production of pellets and in the loading of fuses and boosters. One shell-loading plant, for example, with a working population of 6,364 exposed to tetryl, has reported 1,904 (30 per cent) having tetryl dermatitis in the first six months of operation.

Dermatitis generally occurs during the first three weeks of employment among those who have never before been exposed to the material, cases reaching a maximum number about the third week. Most workers become "hardened" from one to four weeks after the development of dermatitis and are no longer irritated by tetryl. Especially is this true if they continue working while being treated. It was noted at one shell-loading plant that about 85 per cent of the workers who had been affected became nonreactive; while at another, although exact figures are not available, the incidence of dermatitis became lower the longer the workers were

employed. A small percentage of workers apparently never become completely insensitive and dermatitis develops whenever they are exposed even to minute quantities of tetryl. The amount remaining on a fellow worker's street clothes has in some instances been sufficient to light up dermatitis in a susceptible worker although the contact lasted only during the ride home. Some workers become "hardened" more gradually or to a lesser degree and never quite to the point of complete immunity.

The workers most frequently affected are those taking the tetryl into and out of the drying house, where they are exposed to large amounts of tetryl dust, those packing the tetryl for shipment, those blending tetryl with graphite in the loading plants, those working at the pellet making machines, those inserting the pellets into boosters and those loading powdered tetryl into booster bags. The blending of tetryl is done in explosion-proof compartments, the operator being outside at a considerable distance (remote control). The pelleting is done in a similar manner except that the operator watches through a slit in the walls or sees the operation from a distance by means of mirrors.

The most frequent sites of tetryl dermatitis are about the mouth (fig. 2), on the cheeks, around the eyes and on the neck. In some cases there is considerable edema of the face, the eyes being swollen shut. Dermatitis of the hands, the arms, the genitals and other parts of the body touched with soiled hands may also occur but is infrequent. Nosebleed without ulceration of the nasal mucosa often occurs. The skin itches, then becomes erythematous, and papules and vesicles may develop. The latter may break and ooze. Later, roughness and scaling may occur. The palms and fingers are usually stained dark yellow, and the hair of blonds becomes a typical "tetryl red." Most workers show staining of the hands, and a few coloration of the hair without any evidence of cutaneous irritation. Workers thus affected are sometimes called "canaries." The epithelium of the palms is indelibly stained, and it takes two or three weeks after exposure ceases for the stain to fade out.

The treatment of tetryl dermatitis consists in the application of cold boric acid dressings to the swollen face, followed by mild ointments as the swelling disappears and desquamation occurs.

The stain on the hands is difficult to remove. The use of a 10 per cent aqueous solution of sodium sulfite, followed by washing with soap and water, is thought to be the best way to remove it. The sodium sulfite may be incorporated into the soap, or potassium sulfite may be put into liquid soap, which reduces the time required for removal of the stain. This method of washing the hands also serves as an indication of the removal of the free tetryl, for as long as there is free tetryl on the skin a purple color will show in the sodium sulfite solution.

The following preventive measures are recommended: 1. Freshly laundered coveralls should be provided daily for every worker exposed to tetryl. 2. Workers handling tetryl should wear (a) soft washable leather gloves fastened at the wrists so that the dust cannot fall into the gloves, (b) impervious sleeves fastened around the glove at the wrist and extending up to the axilla to protect the arms and (c) impervious aprons for the protection of the anterior surfaces of the body. 3. As compulsory shower baths after work are an important factor in the prevention of tetryl dermatitis, time at the company's expense should be allowed the workers

for taking the baths. 4. Since the skin of the face is affected from touching it with soiled fingers and from irritation caused by the respirator touching the face, a protective preparation should be applied to it. Such an application should be of the invisible glove type reinforced by a powder to prevent it from being easily penetrated by sharp particles. The formula given in table 1 was found to give better protection than any other available. The shellac forms the film on the skin when the alcohol evaporates. In the film are embedded the solid ingredients for reinforcement. The perborate liberates oxygen when it is wetted. The oxygen tends to detoxify tetryl. The linseed oil plasticizes the shellac, and the carbitol permits the film to be removed after work by washing with water.



Fig. 2.—Tetryl dermatitis

The water soluble type of invisible glove application also gives considerable protection. The formula given in table 2 incorporates it with a reinforcing powder.

Reliance for the prevention of tetryl dermatitis should not be placed on protective ointments alone. These should be used in conjunction with all the other preventive methods mentioned. All workers need not use all these protective measures. Those who have worked for a long time without getting dermatitis or those who have become nonreactive need not do any more than wear clean protective clothing and take shower baths after work. Only new workers and those who are sensitive to tetryl must observe all these preventive measures.

Systemic poisoning from tetryl is a disputed subject. While some cases have been reported, most authorities deny its occurrence.

Petrolatum inserted into the nostrils several times a day may prevent congestion of the nasal mucosa and nosebleed. The hair can be protected from the dyeing action of tetryl by wearing a close-fitting cap or hood.

TRINITROTOLUENE (TNT)

Trinitrotoluene, or TNT, is the most commonly used bursting charge. It is made by nitrating toluene to mononitrotoluene, nitrating this to dinitrotoluene and then nitrating this to trinitrotoluene. This is washed with hot water until there is no more acidity. Then the neutral trinitrotoluene, now in the form of an oily liquid, is run into crystallizing kettles and from there into graining kettles. It is then transported to where it is boxed with nonsparking tools. Workers with this explosive should wear shoes containing no nails.

Trinitrotoluene resembles light brown sugar. It is soluble in ether, acetone and alcohol but is insoluble in water. On entering a room in which the dust of this explosive is present one experiences a bitter taste.

Dermatitis from trinitrotoluene begins to occur at the operation in which the product is washed with hot water to neutralize the acid and occurs from there on at every stage of the manufacturing, packing and bomb and shell loading processes. Workers engaged in unloading the boxes at the plants where shells are loaded, those pouring the trinitrotoluene into the melting boxes, those pouring it into shells and bombs, those

TABLE 1.—Protective Preparation Against Tetryl Dermatitis

	Parts
Shellac.....	13
Isopropyl alcohol.....	31
Linseed oil.....	4
Titanium oxide.....	12
Sodium perborate.....	13
Talcum.....	20
Carbitol (monoethyl ether of diethylene glycol).....	3

TABLE 2.—Water Soluble Application

	Parts
Casein.....	20
Zinc oxide.....	20
Iron oxide.....	2
Water.....	58

drilling holes in it in the shells to make room for the booster and those inserting it into primers are especially likely to become sensitized and show dermatitis after five or more days of exposure. The hands, wrists and forearms are most commonly affected (fig. 3), but the dermatitis is often found at points of friction, such as the collar line, the belt line and the ankles. A more or less generalized dermatitis may occur but is rare. The lesions on the palms are characteristic, resembling somewhat the deep-seated vesicles of a phlytid. They are deeper seated and larger (pea sized) and are accompanied by considerable edema. The dorsa of the hands are also usually edematous, and even the forearms up to the elbows may be affected. In seven to fourteen days the inflammation usually subsides and the skin peels in large thick pieces from the palms, in smaller pieces from other parts, leaving new skin beneath. The lesions on other parts are not characteristic, consisting of papules and vesicles followed by flaky desquamation.

Trinitrotoluene stains the skin of the hands a light yellow and discolors the hair to a reddish blond.

It may be taken into the system through the respiratory and gastrointestinal tracts and may be absorbed through the skin to cause anemia, leukopenia and yellow atrophy of the liver. Workers exposed to it often show cyanosis, or "blue lip," a livid purple of the lip and blueness of the face. They should be examined periodically for changes in the blood and hepatic damage.

The treatment of dermatitis caused by trinitrotoluene consists in the application of mild wet dressings such as boric acid solution and solution of aluminum acetate in the acute stages and the use of mild ointment such as boric acid ointment or zinc oxide ointment when the acute symptoms subside.

Workers with mild dermatitis should be treated while working in order to give them an opportunity to get

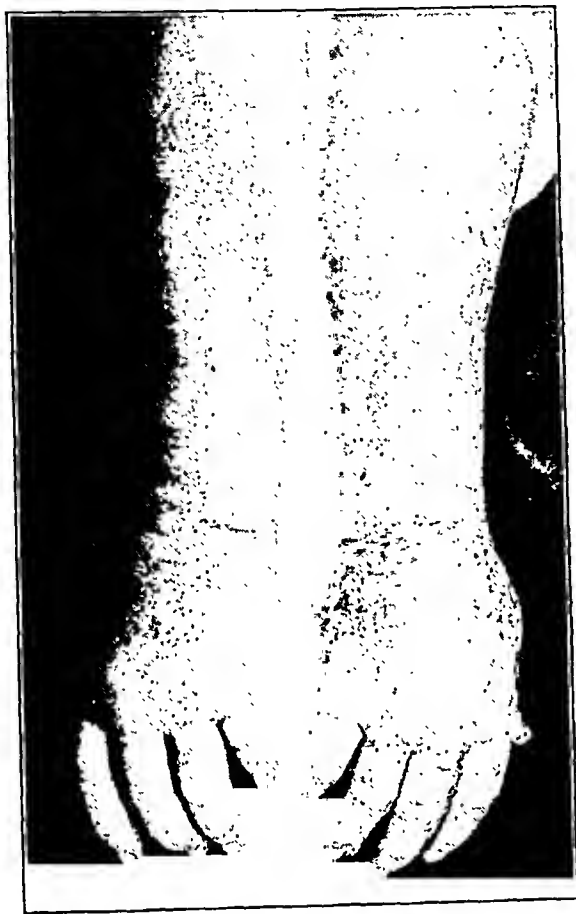


Fig. 3.—Trinitrotoluene dermatitis.

well on the job and become "hardened," as the majority do. While working, they should be given protective clothing in the form of dustproof sleeves and aprons, in addition to a daily change of clean coveralls, stockings and underclothes. Washable soft leather gloves with smooth seams should also be provided and cleaned daily. They should fit snugly at the wrists to prevent the entrance of the dust of trinitrotoluene, and the sleeves should be fastened over them at the wrists. All workers with this explosive should take cleansing showers after work, before leaving the factory, and they should wash their hands before their meals. A liquid soap containing 10 per cent potassium sulfite may be used.¹ This will give a purple color as long as free trinitrotoluene is on the skin. The Webster test will also show the presence of this substance on the clothes or the skin. It consists in dissolving 10 per cent sodium hydroxide in alcohol and applying a drop to the clothing. A purple color develops if trinitrotoluene is present.

All workers should be given the protective clothing advised in the foregoing paragraph. While ointments are not to be relied on to give as much protection as the measures recommended, if for some reason or other they must be used the type described for protection against tetryl is also the best for protection against trinitrotoluene.

1. Norwood, W. D.: Trinitrotoluene (TNT): Its Effective Removal from the Skin by a Special Liquid Soap, *Indust. Med.* 12: 206-208 (April) 1943.

AMATOL AND AMMONAL

Amatol is a mixture of ammonium nitrate and trinitrotoluene. It is made by preheating ammonium nitrate and letting it mix with molten trinitrotoluene, usually in the proportion of 50 parts each or that of 80 parts ammonium nitrate to 20 parts of trinitrotoluene. The hazard, treatment and prevention of dermatitis are the same as for trinitrotoluene. Ammonal is a mixture of ammonium nitrate and powdered aluminum. Dermatitis from it is not as frequent as that from amatol.

AMMONIUM PICRATE (EXPLOSIVE D)

Ammonium picrate, or explosive D, is made by reacting a hot aqueous solution of picric acid with ammonia and crystallizing the ammonium picrate by cooling. In the form of the wet crystals it is taken to the dry house and dried by circulating warm air. It is then packed in waterproof boxes.

Ammonium picrate consists of orange colored needle shaped crystals. It is soluble in water, has a bitter taste and dyes the skin, hair and clothes of workers exposed to it. It is used as a bursting charge in armor piercing shells, into which it is loaded by pressing. Because it attacks metals, the inside of the shell is coated with a nonmetallic paint or varnish.

From the time it is in the wet crystal stage up to the time of loading the shells ammonium picrate causes sensitization dermatitis among workers exposed to it. Those handling the dry product are the ones most affected. The face is usually involved (fig. 4), especially around the mouth and the sides of the nose. There are edema, papules, vesicles and finally desquamation. "Hardening" occurs as described for tetryl and trinitrotoluene. The treatment and the preventive measures are the same as for tetryl and trinitrotoluene.



Fig. 4.—Ammonium picrate dermatitis.

PICRIC ACID

Picric acid, or trinitrophenol, can be made from benzene or from dinitrophenol. It is a lemon yellow crystalline solid, only slightly soluble in water but soluble in alcohol, benzene and other organic solvents. It stains the skin, the hair and the clothing of workers yellow. It has a bitter taste.

Picric acid causes dermatitis similar to that described under ammonium picrate.

MERCURY FULMINATE

Mercury fulminat  is a brownish yellow heavy crystalline solid made by the action of alcohol on mercuric nitrate. There is but little dermatitis among workers engaged in its manufacture. It is used in detonators and primers and is one of the most frequent causes of dermatitis in shell loading plants. It causes sensitization dermatitis, and it can also cause ulcers if it enters



Fig. 5.—Mercury fulminate dermatitis.

abrasions. Because of its sensitivity, mercury fulminate is stored wet. Before use it is dried and delivered in small amounts to the detonator lines. It may be used to fill the detonators while it is still wet, and in this case the detonators are placed in drying rooms to dry.

When used for primers, mercury fulminate is mixed with other ingredients, such as antimony sulfide or potassium chlorate. In the making of detonators there is a certain amount of exposure to the dust in practically all of the operations, and most of the dermatitis from mercury fulminate occurs in a manufacture of detonators. In the making of primers the mercury fulminate is usually handled wet and the workers wear rubber gloves or finger cots.

Dermatitis from mercury fulminate occurs mostly on the face (fig. 5) and anterior surfaces of the arms, but other parts of the body may also be affected. If the wet primer mixture is dropped on the clothing, the powder when it dries will sift through the clothing to the skin and cause dermatitis on the covered parts of the body. The inhalation of the dust of mercury fulminate causes nasal irritation. Rubbing the nose with soiled hands or gloves is often the means of carrying the chemical to the face. Conjunctivitis also occurs in a considerable number of these workers.

In occupational dermatitis the etiologic role of the other ingredients in primers and detonators must not be overlooked; and if it is desired to find the actual cause of dermatitis among workers, patch tests should be performed with the various ingredients in the explo-

sive mixtures. Petrolatum inserted into the nostrils will afford protection from nasal irritation, as described under tetryl.

HEXITE

Hexite, or hexanitrodiphenylamine, is a yellow crystalline solid, soluble in alcohol and in acetone. It is manufactured from dinitrochlorobenzene, and it causes vesicular dermatitis of the hands followed by desquamation, similar to that described under trinitrotoluene, among workers engaged in its manufacture and among those engaged in loading it into shells and bombs.

Hexite is now being made and used but not in as large quantities as trinitrotoluene. The incidence of dermatitis from it is higher than that from trinitrotoluene. It causes irritation of the mucous membranes of the nose and the mouth, and it stains the skin and the hair yellow. It also causes systemic poisoning similar to that caused by nitroglycerin.

PENTAERYTHRATOLTETRANITRATE (PETN)

Pentaerythratoltetranitrate, or PETN, a new explosive is used as a bursting charge. Dermatitis or systemic poisoning has not yet been reported as being caused by it.

BLACK POWDER AND SMOKELESS POWDER

Black powder was the first propellant, and until 1870 it was practically the only propellant used. Today, however, it is used only for igniter charges, for expelling charges from shrapnel, for primers and in the manufacture of fuses. Black powder is a mixture of potassium or sodium nitrate, charcoal and sulfur. It is only a rare cause of dermatitis.

Smokeless powder has entirely displaced black powder as a military propellant. It is manufactured by nitrating cotton with a mixture of nitric and sulfuric acid, purifying the pyrocotton, mixing it with ether and alcohol and pressing it into a colloid, called "cheese," pressing the colloid through openings into macaroni shape, cutting it into suitable sizes, drying and blending. Diphenylamine and graphite are added as stabilizers. There are some double base powders, which contain nitroglycerin.

Dermatitis from smokeless powder is rare. Workers operating dehydrating presses are exposed to fumes of ether and alcohol, and dilatation of the blood vessels of the face has been observed in those whose exposure has extended over a number of years. Workers with double base powder sometimes complain of headaches as the result of the systemic effects of nitroglycerin. The wearing of rubber or washable leather gloves will reduce the cutaneous absorption of nitroglycerin and help to prevent systemic effects.

LEAD STYPIHATE, SENSOL AND LEAD AZIDE

Lead styphnate is a reddish brown powder used in priming mixtures. It is manufactured by reacting resorcin with sulfuric acid and then nitrating to form trinitroresorcinol. This is then mixed with magnesium oxide and reacted with a solution of lead nitrate. Lead styphnate turns the hair and skin yellow and causes dermatitis similar to that described under tetryl.

Sensol, a yellow powder, manufactured by the action of sodium nitrate on aminoguanadine sulfate, is also used in primer mixtures and causes dermatitis similar to that of tetryl.

Lead azide is manufactured by the action of lead nitrate on sodium azide. It is a highly sensitive explosive and is used in detonators and primers. It rarely causes dermatitis.

NITROGLYCERIN

Nitroglycerin is made by adding glycerin to a mixture of sulfuric and nitric acids. To make dynamite, wood cellulose, nitrates and infusorial kieselguhr are added to the liquid nitroglycerin. To make gelatin dynamite, nitrocotton is added to nitroglycerin. Nitroglycerin is sometimes added to smokeless powder (cordite) to give desired ballistic properties. It is also used as a propellant aid in firing trench mortars. Headache develops in workers with nitroglycerin when they are starting the week's work. In order to prevent this some of them carry a little of it in their hat bands. Nitroglycerin causes no dermatitis but can be absorbed through the skin and cause cardiovascular disease.

COMMENT

Dermatitis occurs fairly frequently among workers filling primer cups. These may contain mercury fulminate, lead sulfocyanide, antimony sulfide, potassium chlorate and trinitrotoluene. In most of these cases the trinitrotoluene has been found by patch tests to be the principal cause of the dermatitis. The palms are affected in a manner similar to that described under trinitrotoluene.

Dermatitis from the tracer mix, consisting principally of strontium compounds and resinate, occurs but rarely, and I have seen no cases of dermatitis from the igniter mix, which contains magnesium and barium peroxide.

Dermatitis occurs in workers engaged in the manufacture of fuses. These may contain tetryl, lead azide and mercury fulminate.

Boosters always consist of tetryl in the form of pellets or of powder.

DERMATITIS FROM CUTTING OILS, SOLVENTS AND DIELECTRICS, INCLUDING CHLORACNE

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The use of solvents and cutting oils is so widespread that it is not possible to inspect any large manufacturing plant without encountering some department where one or the other is used. All operations in which cutting tools are used are literally bathed in oil of one type or another. It is almost impossible under ordinary conditions and much more so under the pressure of war production for the workers to avoid intimate contact with either the solvents or the cutting oils used in their operations.

Dermatitis from cutting oils, especially those of the insoluble type, occurs more frequently than any other occupational disease of the skin. If its incidence could be decreased, one of the most vexing problems of the industrial physician would be solved.

The use of the dielectrics, especially the chlorinated hydrocarbons, is rapidly increasing. The latter give rise to a characteristic cutaneous eruption, known popularly as chloracne, which was first described in this country by Schwartz.¹ The early diagnosis of this condition and the knowledge of its possible occurrence

in any industrial process is of great importance. Once the condition develops, it is very persistent and takes many weeks to cure, even after the exposure has been eliminated. Chloracne can be prevented almost entirely by the institution of proper preventive measures.

While it is true that at times dermatologists may not be entirely acquainted with the exact chemical entity which is responsible for an occupational dermatitis, they have in the last few years learned enough about the mechanism of the production of industrial dermatitis to institute proper preventive measures. This is especially true as far as the cutting oils and the solvents are concerned.

It is important to stress over and over again that proper preventive and protective measures can decrease the incidence of occupational dermatoses.

CUTTING OILS

Cutting oils not only are the most frequent causes of dermatitis among the workers with machine tools and metals but have been shown to give rise to more occupational dermatitis than any other agent. The cutaneous eruptions which they elicit are usually of the acneform group, but they sometimes cause allergic dermatitis as well. This is not due to the fact that they are the most potent producers of acne or to the fact that they contain substances having unusual sensitizing properties but to the fact that more workers are exposed to their action and fewer precautions are taken against their effects on the skin.

The cutting oils can be divided into two main groups, the insoluble and the soluble. Of the two, the insoluble cutting oils are most frequently the etiologic agents in cutting oil dermatitis.

The insoluble cutting oils vary in their composition according to the particular types of machining for which they are to be used. The formulas of these oils are rarely known by their users, since they are trade secrets. Essentially they consist of a large percentage of petroleum oil to which is added a small amount of animal and vegetable oil ("lard oils"), chlorine compounds, sulfur and an inhibitor to prevent deterioration of the fatty oil.

"Lard oils" were first used, but the oils derived from petroleum have been substituted, both because of their cheapness and because, unlike the vegetable or the animal oils, they do not become rancid. The mineral oils may be obtained from crudes of various types. The so-called lard oils, which are now added only in small amounts, may be oleic acid, fish oils, lard oils and vegetable oils. The inhibitors which are incorporated to prevent rancidity of the lard oils should not have the property of rusting iron and usually are phenolic amines.

The insoluble cutting oils are used chiefly as aids to help in the cutting operation. One of their chief functions is the reduction of adhesion between the chip and the tool face. According to Ernst and Merchant² a chemical reaction may take place between the cutting fluid and the freshly ruptured chip surface. It is important to bear this in mind, as the chemical compounds which are formed may act as a possible source for some of the dermatitis from the cutting oils. Apparently this possibility has not been previously considered.

The sulfur which is added gives somewhat different characteristics to the cutting oils than do the chlorine

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1. Schwartz, Louis: Dermatitis from Synthetic Resins and Waxes, *Am. J. Pub. Health* 26: 586 (June) 1936.

2. Ernst, Hans, and Merchant, M. E.: Chip Formation, Friction and Finish, Cincinnati, Cincinnati Milking Machine Company, August 1940.

compounds. At low cutting speeds chlorinated fluids are more effective in reducing the friction between the tool and the tool face as compared with sulfurized fluids. Sulfurized fluids are more effective at high cutting speeds or under severe cutting conditions.

The insoluble cutting oils are usually sterile in spite of the high incidence of folliculitis that they produce. It is not necessary and in fact adds to the possibility of a cutaneous irritation when antiseptics are added because of the mistaken idea that the bacterial content of the cutting oils is the cause of the folliculitis.

The soluble cutting oils act mainly to cool the cutting tools. Lubrication is a secondary function. According to Schwartz³ the main constituents of the soluble cutting oils are sulfonated mineral and fatty oils 60 to 95 per cent, soap 5 to 30 per cent and volatile contents

Often the worker will use old waste impregnated with the oil containing the metal particles to wipe his hands and thus cause wounds and scratches.

The petroleum oils may defat the skin. This is only slightly modified by their content of fatty oils. Just as in dermatitis due to solvents, especially in older persons with dry skins, the degreasing action may lead to drying and fissuring of the skin. Secondary infection may occur through the wounds and scratches.

Papillomas may be seen on the hands and arms of those exposed for many years to mineral oils and greases. These are small, flat, brownish verrucous lesions, usually seen on the backs of the hands.

Allergic eczema is relatively of infrequent occurrence. It may be due to idiosyncrasy for the animal or the

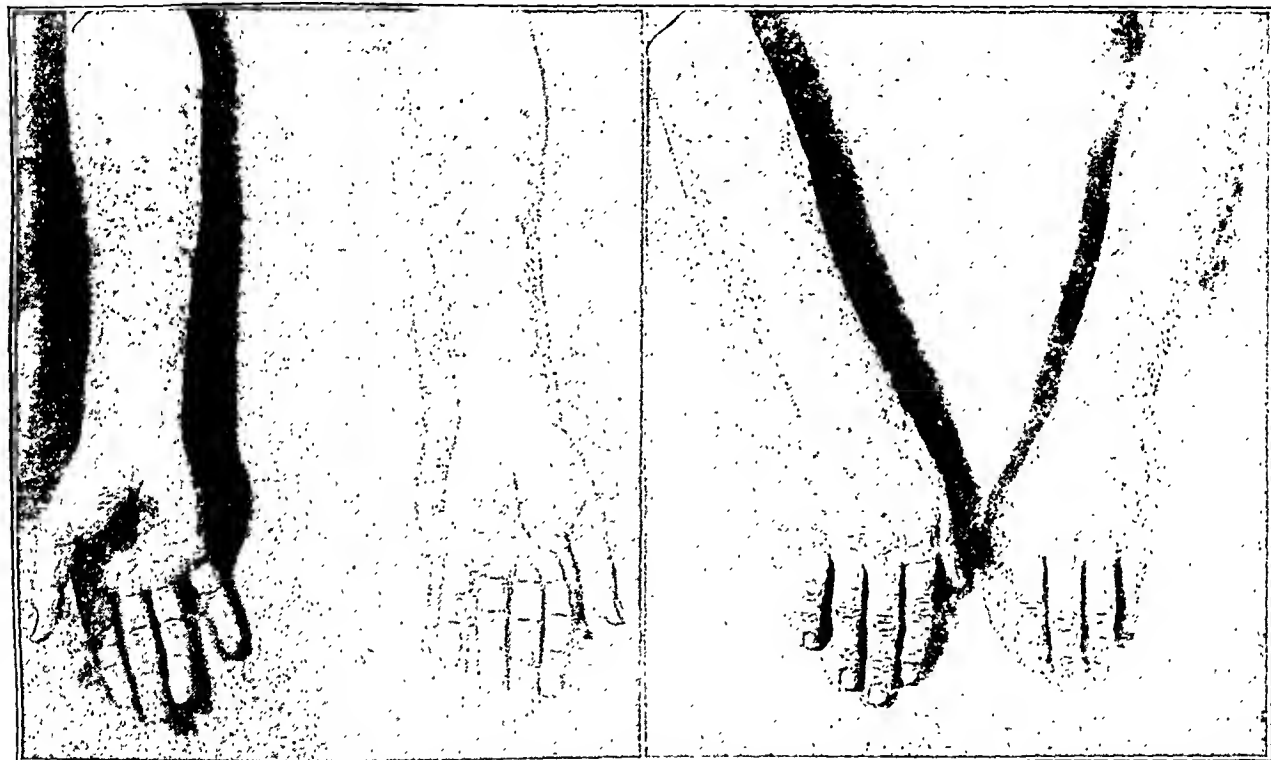


Fig. 1.—Dermatitis from insoluble cutting oils. The patient was an automatic screw machine operator (patient of Dr. L. W. Spolyar, Indiana State Board of Health).

0 to 10 per cent. Inhibitors such as phenolic amines are added to prevent rancidity. The soluble cutting oils are diluted many times with water (5 to 100 or 1 to 100) before they are used.

It is the soluble cutting oils which have a high content of bacteria, many of them pathogens. However, folliculitis and infections and even contact dermatitis are relatively rare among workers exposed to them as compared with those exposed to the insoluble cutting oils. This can readily be understood when one considers how they are diluted before being used. Spolyar and Ferrec⁴ recently reported systemic effects from the hydrogen sulfide encountered in a cutting oil.

Dermatitis from Cutting Oils.—The cutting oils contain metal slivers which may cause small wounds.

vegetable oil, the inhibitors, such as the nitrobenzenes, cresols and phenols, or the other antiseptics which may be added. As has been pointed out previously, chemical compounds may be formed in the cutting operation by the interaction between the cutting tool, the face of the cut metal and the sulfur and chlorine compounds in the cutting oil. These chemical compounds may be factors in allergic dermatitis. The specific hypersensitivity can be demonstrated by means of the patch test. Not only may the dermatitis be aggravated by the use of harsh cleansers, but these themselves may often give rise to dermatitis.

The lesions most frequently seen after exposure to the cutting oils (usually the insoluble and rarely the soluble cutting oils) are folliculitis and comedos. The hairy portions of the arms and the anterior surfaces of the thighs are the sites of predilection. They are also seen on the backs of the hands and fingers and on the abdomen (figs. 1 and 2).

3. Schwartz, Louis: *Dermatitis from Cutting Oils*, Pub. Health Rep. 56: 1947 (Oct. 3) 1941.

4. Spolyar, W. L., and Ferrec, J. W.: *Some Occupational Diseases Associated with the War Production Program*, J. Indiana M. A. 35: 402 (Aug.) 1942.

The eruptions are especially prone to appear in hairy persons with a well developed pilosebaceous apparatus. Those areas of the body, such as the waist and the anterior parts of the thighs, which are exposed to intimate contact with oil soaked clothing, may also be affected.

Comedos may be seen occupying almost all the follicular openings on the forearms and the upper anterior surfaces of the thighs, with relatively little inflammatory reaction. Usually, however, there are interspersed papules, pustules and patchy areas of perifollicular erythema. The papules and pustules are usually perifollicular. When secondary infection occurs, abscesses or even carbuncles become evident.

The histologic nature of oil folliculitis was recently studied.⁶ The process could be seen to consist of a stimulus to the formation of keratin leading to the formation of a keratogenous plug in the follicular opening (comedo formation) similar to that seen after irritation with coal tar, coal tar distillates, coal tar pitch and the chlorinated hydrocarbons. The lesions



Fig. 2.—Cutting oil dermatitis on thigh. Note the comedo formation. The patient was a safety glass worker in contact with petroleum oil (patient of Dr. Louis Schwartz, U. S. Public Health Service).

produced by the cutting oils usually begin as folliculitis, and the process is much more inflammatory and extends some distance into the skin surrounding the affected hair follicles. Even the sweat glands may be involved. No bacteria were demonstrated in the lesions.

For a long time it was thought that the inflammatory reaction caused by the cutting oils was due to their content of pathogenic bacteria. It has been shown time and again that the insoluble cutting oils with their high incidence of folliculitis are sterile while the soluble cutting oils which may contain bacteria rarely cause any inflammatory reactions. Secondary infection may occur, but the bacteria are not from the insoluble cutting oils; they find their entrance through the wounds and scratches from the metal slivers or the abrasions caused by friction of the clothing against the inflamed skin. The bacteria may originate from the clothing and even from the skin of the affected worker.

It seems clearly brought out both by the study of histologic sections from areas of oil folliculitis and by the bacterial examination of insoluble cutting oils that the inflammatory reaction which is produced by the

oils is due to the presence of irritants in them. These irritants may be sulfur compounds, chlorine compounds, the inhibitors or other not as yet identified chemical substances in the insoluble cutting oils.

Schamberg⁶ conducted exhaustive experiments with the insoluble cutting oils in an attempt to reproduce oil folliculitis in human subjects. According to his findings it was the organically combined hydrocarbon sulfonate which was mainly responsible for the irritation. This is substantiated by the well known fact that petroleum products which are not sulfurized, such as petrolatum, which is widely used as a dermal application, soothe rather than irritate. The formation of the comedo is due to the stimulation of keratin formation by the mineral oils acting on the cells lining the follicular openings. When in addition these oils contain solid chlorinated hydrocarbons, acneform lesions of the more cystic type such as will be described under chloracne may be seen associated with the folliculitis and comedo formation.

A discussion of the possible relationship between contact with some of the insoluble cutting oils and the elicitation of latent epidermophytids is beyond the scope of this paper. Biram⁷ has called attention to this possibility. It is hoped that from the work now being done more light will be thrown on this possible relationship.

Prevention.—The following suggestions with a few changes to suit a particular problem can be used as the basis for an attempt to prevent almost any occupational dermatitis. The problem consists essentially in reducing to a minimum the contact between the worker and the irritant.

1. The machines should be kept as free from grease and dirt as possible by a daily cleansing. The oil should not be allowed to accumulate at the base of the machine or on the floor. In some manufacturing plants metal aprons are attached to the machines to prevent splashes of oil coming in contact with the workers or reaching the floor. The oil should be changed at least once a week. If it is to be reused it should be filtered to remove metal slivers. Instead of adding antiseptics which increase the hazard of dermatitis, sterilization can be employed, but this applies only to the soluble cutting oils. The rancidity can be removed by neutralization. It must be borne in mind, however, that a number of the chemical compounds which are formed in the oil by the cutting operation or which are due to sulfurization or to the addition of chlorinated hydrocarbons cannot be removed by reprocessing or cleaning the oil.

2. Adequate washing facilities with hot and cold running water and shower baths should be provided. The use of the showers should be compulsory and supervised, and enough time should be allotted for their use. Clean towels should be given to the workers daily, and they should have free access to clean waste at the machines. Old waste with its content of metal slivers should be discarded. The dressing rooms should have two rows of lockers: one in which the street clothes are removed and the other preferably in a room which would be entered only through the showers for the work clothes. To guard against epidermophytosis,

6. Schamberg, J. F.: *Causes of Skin Sores and Boils Among Metal Workers*, Philadelphia, E. F. Houghton & Co., 1920.

7. Biram, J. H.: *Prevention of Skin Rashes*, *Indust. Med.* 12: 203 (April) 1943.

5. Schwartz, Louis, and Peck, Samuel M.: *Occupational Acne*, New York: State J. Med. 43: 1711-1718 (Sept. 15) 1943.

wooden soled sandals should be worn to and from the showers. Proper antiseptic foot baths should also be provided.

3. Proper solid or liquid skin cleansers should be provided. For those workers whose skins become defatted and for those who have dermatitis, the neutral sulfonated skin cleanser advocated by Schwartz⁸ should be used or a similar preparation. Schwartz has recommended the use of a neutral sulfonated castor oil to which 2 per cent of a synthetic wetting agent has been added. He has further suggested that for ordinary use the cleanser should consist of a neutral toilet soap plus a wetting agent or a synthetic detergent and a scrubber which softens or dissolves in water and does not clog the plumbing.

4. Clean work clothes should be provided daily for the workers and laundered by the plant.

5. To protect the exposed portions of the body, the workers should be provided with impervious sleeves, aprons and gloves made from one of the synthetic resin films. The sleeves should fasten over the gloves and be long enough to extend over the elbows.

6. Protective ointments are often used. They are not as efficacious as protective clothing and should be used only on those parts of the body, such as the face, which cannot be protected otherwise. The invisible glove type of protective ointment can be used, which leaves a film on the skin insoluble in oil but soluble in water, or a greasy ointment made of animal or vegetable fat, which fills up the pores and acts as a buffer between the skin and the cutting oil. In all such ointments a wetting agent should be incorporated to make them easily removable.⁸

Treatment.—The best treatment of dermatitis caused by cutting oils is the prevention of further contact with the cutting oils. When folliculitis and inflammation are present, wet dressings of 50 per cent alcohol, solution of aluminum acetate or solution of boric acid are helpful. The wet dressings can be applied to the arms and covered with one of the impervious sleeves suggested under prevention, and thus the worker can continue his occupation. Several times during the day he can visit the first aid room to have the wet dressings renewed. Thus no time is lost, and the worker actually receives better treatment than if he were to stay home. If an abscess or a carbuncle develops, surgical treatment is necessary. Unless there is definite secondary infection, the local use of the sulfonamides is not only unnecessary but often increases the dermatitis. For the defatted skins a soothing ointment, such as a cold cream, perhaps one containing hydrous wool fat or lecithin, or any good emollient cream rich in vegetable and animal fats can be used.

SOLVENTS

Dermatitis is a frequent occurrence among persons exposed to solvents. It frequently occurs among the users of solvents but is relatively rare among the workers who are engaged in their manufacture. This is due to the fact that the processes of their manufacture are almost entirely enclosed.

Among the solvents are included the organic liquids which are used as cleansers in degreasing operations of various kinds, also those used to extract oils, fats and wastes, the solvents for plastics, resins and rubber and those used to dissolve varnishes, paints and lacquers.

The organic solvents can be divided into the following groups:

1. Petroleum derivatives.
 - (a) Pentane.
 - (b) Petroleum ether.
 - (c) Benzine in that portion of crude petroleum distilled below 150 C.
 - (d) "Stoddard solvent," a petroleum distillate which boils between 150 and 200 C. It is popular as a degreasing agent.
 - (e) Varsol, also popular as a degreasing agent.
 - (f) Kerosene.
2. Coal tar derivatives.
 - (a) Coal tar naphtha, or light oil. It is a complex compound containing phenols, aniline, toluidine, naphthalene, pyridine and other sulfur compounds.
 - (b) Benzol (benzenes), the fraction which distills below 120 C. It is not pure benzene (C_6H_6) but consists mainly of benzene and toluene with small amounts of carbon disulfide and hydrocarbons.
 - (c) Toluene (toluol) (C_6H_5). It is obtained from the fractional distillation of coal tar naphtha.
 - (d) Xylene (xyol) (C_6H_{10}).
 - (e) Light solvent naphtha.
 - (f) Heavy solvent naphtha.
 - (g) Tetralin (tetrahydronaphthalene) ($C_{10}H_{12}$).
 - (h) Dekalin ($C_{10}H_{18}$).
3. Turpentine: Turpentine is derived chiefly from the resinous exudation of various species of pine and other Coniferae.
 - (a) Gum turpentine, obtained by closed distillation of the oleoresin from the pine tree. The turpentine comes off, and the resin remains.
 - (b) Russian turpentine, obtained by destructive distillation of wood.
 - (c) American steam distilled turpentine, made from pine tree stumps. It contains 70 to 90 per cent of alpha beta pinene, about 10 per cent dipentene (inactive limonene) and a small amount of paramenthane.
 - (d) Pine oil, a by-product of the steam distillation of turpentine. It consists of a mixture of higher alcohols.
 - (e) Terpeneol, spirit of resin, spirit of tar and oil of pine needles.
4. Alcohols.
 - (a) Methyl alcohol (CH_3OH), or wood alcohol.
 - (b) Ethyl alcohol (C_2H_5OH). This is usually denatured for commercial use by the addition of naphtha, acetone or zinc sulfocarbolate, all of which render it unfit to drink.
 - (c) The higher alcohols, such as butyl, amyl and propyl.
5. Chlorine derivatives.
 - (a) Chloroform.
 - (b) Carbon tetrachloride (CCl_4).
 - (c) Dichloroethylene ($C_2H_2Cl_2$).
 - (d) Trichloroethylene (C_2HCl_3).
 - (e) Perchloroethylene (C_2Cl_4).
 - (f) Tetrachloroethane ($C_2H_2Cl_4$).
 - (g) Monochlorobenzene, dichlorobenzene.
6. Esters.

Methyl, ethyl, butyl and amyl acetate and derivatives.
7. Glycols.

Ethylene glycol and diethylene glycol.
8. Carbon disulfide (CS_2).
9. Ketones. Acetone, methyl ethyl ketone, methyl acetone.

According to Schwartz,⁹ about 3 per cent of 6,000 cases of occupational dermatoses reported were found among painters. Paint consists essentially of a pigment in a drying oil, to which lead, manganese or cobalt

8. Schwartz, Louis: Protective Ointments and Industrial Cleansers, *M. Clin. North America* 26:1195 (July) 1942.

9. Schwartz, Louis: Skin Hazards in American Industry: III. Public Health Bulletin 249, United States Treasury Department, Public Health Service, 1939, pp. 33-42.

is added to hasten the drying. Thinners are added to the paint both to allow for easier application and to hold in solution the oils and resins which paint contains. Turpentine, gasoline, naphtha, petroleum ether, mineral spirits, benzene and toluene are among the thinners used. The largest percentage of cases of dermatosis caused by paint is due to these thinners.

The solvents frequently encountered in the war industries are the dopes used in spraying the wings and the control parts of planes. The dopes consist of a solution of cellulose nitrate or acetate in a volatile solvent such as acetone or amyl acetate. As these evaporate they leave the resin on the fabric. Dermatitis frequently results from contact with the solvents in the dopes.

Another frequently occurring occupational dermatitis is found among workers engaged in degreasing small metal parts, for which the petroleum distillates, kerosene, varsol and others are used. In many industries large degreasing tanks are used which contain trichloroethylene. If proper protective measures are not used in these operations, not only dermatitis but systemic poisoning may occur.

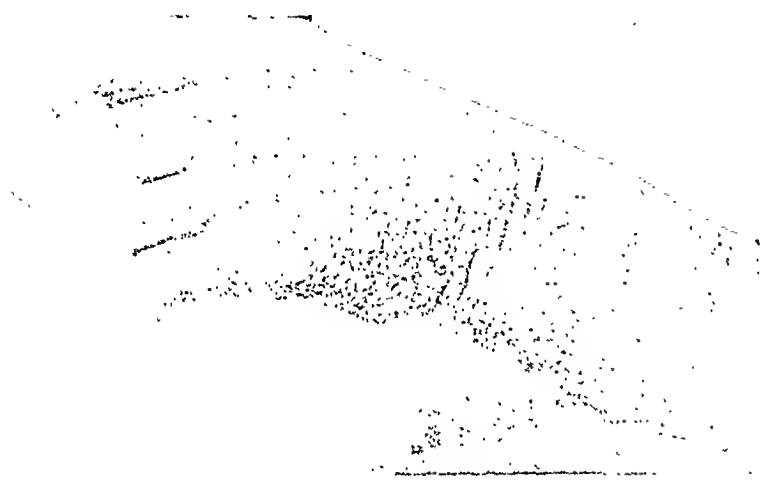


Fig. 3.—Dermatitis as a result of daily contact with a solvent (diethylene chloride) (patient of Dr. Louis Schwartz, U. S. Public Health Service).

Solvent dermatitis is also not infrequently seen in the printing industry, especially among pressmen and compositors, from the action of turpentine, xylene, benzene and other petroleum distillates used in cleaning types and presses.

Clinical Characteristics.—The solvents exert their drying effect on the skin by removing the fats and oils. This results not only in dryness but in cracking of the skin which may eventually lead to a dry fissured appearance which is characteristic (fig. 3). Those most frequently affected are older persons who naturally have dry skins and in whom the natural fats and oils which are removed by the solvents are not easily replaced.

The hands, wrists and forearms are usually affected. In some patients not only the dorsa of the hands but the palms may show fissuring dryness and desquamation. Patients with thin dry skins may even have actual dissolution of the keratin layers, with erythema and vesiculation as a result.

Hypersensitivity may develop with the production of allergic dermatitis, which when it is acute shows typical erythema, papules and vesicles at all places of contact. In such cases cutaneous eruptions may be seen in other parts of the body, such as the legs and even the feet, which may have been in only slight contact with the

solvent. Turpentine is a primary cutaneous irritant and will cause dermatitis if allowed to remain on the skin any length of time.

Most organic solvents are systemic poisons, and poisoning may occur as a result not only of inhalation but of absorption through the skin.

Diagnosis (a history of exposure).—A visit to the plant to inspect the process and to see to what the worker is exposed plus the observation of the characteristic dry fissured scaling dermatitis, especially when it involves the palms, are sufficient to make the diagnosis of solvent dermatitis. However, when the allergic type of eruption is seen, a positive diagnosis can be arrived at only by a patch test properly performed.

Since the solvents are primary irritants, they cannot be put on the skin as in the ordinary method of performing a patch test. They have to be diluted so that the final concentration used on the skin is known not to irritate the skin of normal persons. About 50 per cent of the solvent in corn oil can be used for the patch test.

Prevention.—To prevent the fumes of the volatile solvents from reaching the workers, hoods, suction devices and other mechanical means should be used. The suggestions for individual protection, however, must be followed to prevent dermatitis from the solvents.

Protective clothes made of synthetic rubber must be used, since rubber is attacked by many of the carbons of petroleum and by carbon disulfide also; gloves made from the polyvinyl alcohols can be substituted for those of synthetic rubber. Impervious sleeves which fasten over the gloves and reach over the elbow made from the same materials should also be worn. Aprons long enough to protect the body should, of course, be made from the same fabric.

As far as the rest of the clothing is concerned, including its laundering and other care, the rules laid down for the prevention of cutting oil dermatitis can be carried out.

As to cleanliness, because of the defatting action of the solvents on the skin, the suggestions made for washing and other cleansing measures under cutting oils may not be carried out in the same way. The workers should be taught not to use the solvents to clean off paints and other materials from their skins. Those who show the effects of the solvents on their skins must use safe cleansers, and the cleanser for dry skins previously recommended should be used. As has been stated previously, after washing an emollient like that mentioned under cutting oils should be rubbed into the skin.

DIELECTRICS CAUSING CHLORACNE

The increasing use of dielectrics in insulating wires and condensers, especially chloro compounds, has increased the incidence of the so-called chloracne. These compounds are important dielectrics or insulators because they are heat resistant, flameproof and waterproof. The chloronaphthalenes, the chlorodiphenyls and the chlorodiphenyloxides are especially prone to cause occupational acne. The solid chlorobenzols and the solid chlorophenols are also potent acne producers. Nearly every worker who is sufficiently exposed to these compounds for a few months will have chloracne. Even members of the immediate family who come in contact with work clothes soiled with these chloro compounds have been known to acquire these acneform lesions. The term "chloracne" is a misnomer.

Chlorine itself does not cause occupational acne either by contact or by oral administration. Neither the solvent chlorinated hydrocarbons nor naphthalene, benzene, diphenyl or phenol have caused acneform eruptions. Only the highly viscous or the amorphous solid chlorinated hydrocarbons cause acneform lesions.

The solid chloronaphthalenes are made by substitution of chlorine for the hydrogen in the naphthalenes. Any number of the hydrogen atoms may be replaced. Those most frequently used as dielectrics are the trichloronaphthalenes. Usually these are combined with the chlorodiphenyls (sold under the trade name Halowax). Not all compounds sold as Halowax necessarily consist of the chlorinated hydrocarbons.

Chlorodiphenoloxide is a semisolid compound made by chlorinating diphenoloxide. The chloronaphthalenes and chlorodiphenols not only cause lesions of the skin but give rise to acute yellow atrophy of the liver. While the acne caused by them has been known abroad for some time, the systemic effect was first pointed out by Schwartz in 1935.¹⁰

Recently because of the pressure of war work an increasing incidence of acne-like lesions has been reported among electricians installing cables on ships. It was found that cables were coated with chloronaphthalenes and chlorodiphenyls (halowax). The acne was found usually in electricians engaged in "stripping" the coated cables; the halowax was impregnated into asbestos which was wrapped around the wires as insulation.

In shipyards visited by Schwartz¹¹ it was found that only those exposed continuously for relatively long periods to cables from which the halowax containing the chlorinated hydrocarbons flaked off easily were affected with the acne. He did not see any cases of yellow atrophy of the liver. Workers exposed to the fumes of halowax also had acneform lesions.

Clinical Characteristics of Chloracne.—The lesions of chloracne consist of pinhead to pea sized or even larger pale straw colored cysts. Comedos are present but are not a striking feature. The cysts are located on the face and the lobes of the ears, behind the ears, on the back of the neck, the shoulders, the abdomen, particularly around the umbilicus, and on the thighs and even on the scrotum and the shaft of the penis (fig. 4). Everywhere that the fumes or the clothing soiled with the chlorinated hydrocarbons might come in contact with the skin is an area of predilection. The individual lesions increase in size for a few months and then remain stationary. They may still be present months or even years after exposure has been eliminated.

Systemic absorption does not seem to be the cause of the lesions. This is suggested by the fact that they occur on exposed parts of the body or those intimately in contact with soiled clothing. Even experimental local reproduction of the chloracne has been accomplished by long continued local application of these acne producing substances.¹²

The lesions are due to chloro compounds deposited as fine particles or condensations on the skin from the fumes and from solution. They plug the orifices of the pores and by their keratogenous action cause the formation of comedos. This in turn gives rise to cysts by a combination of mechanical plugging of the mouths of the glands plus actual keratinization of their walls.

This is well brought out in microscopic studies of the lesions¹³ in sections of characteristic straw colored cysts. Large cysts can be seen with very thin walls filled with keratinous material but little sebaceous matter. Associated with such cysts are the wide follicular openings filled with keratin plugs and having hyperplastic follicular walls. Cocci are not evident in the comedos. Just as in acne vulgaris, a foreign body granuloma may occur due to rupture of a cyst wall and contact of the sebum with the collagen.



Fig. 4.—Chloracne from halowax (patient of Dr. Louis Schwartz, U. S. Public Health Service).

Coal tar pitch is sometimes used as an insulating material. It may also cause acneform lesions, but the lesions can be differentiated from chloracne by the accompanying melanosis and the presence of comedos rather than cysts as prominent features.

Acne due to the chlorinated hydrocarbons can be differentiated from acne vulgaris by the history of exposure, by the occurrence at any age, by the distribution on areas of the body where acne vulgaris is usually not seen, such as the abdomen, the back of the neck and even the forearms, by the much less inflammation as compared with acne vulgaris, sometimes by the dryness of the skin, by the fact that comedos are not a predominant feature, by the persistence of the lesions and by the much greater amount of keratinous material contained in the cysts. Cocci are easily demonstrated in the comedos of acne vulgaris, while they are not seen in those due to the chlorinated hydrocarbons.

10. Drinker, Cecil: Certain Chlorinated Hydrocarbons, in Symposium held at Harvard University School of Public Health, Boston, June 30, 1937. Fulton, W. B., and Mathews, J. L.: Dermatological and Systemic Effects of Exposure to Hexachloronaphthalene and Chlordiphenyl, Special Bulletin 43, Pennsylvania Department of Labor and Industry, pp. 1-15. Myer, May R., and Silverberg, Mabel G.: Skin Conditions Resulting from Exposure to Certain Chlorinated Hydrocarbons, J. Indust. Hyg. & Toxicol. 20: 244 (March) 1938. Jones, J. W., and Alden, H. S.: Acneform Dermatitis, Arch. Dermat. & Syph. 33: 1022 (June) 1936. Morris, G. E., and Tabershaw, I. R.: "Cable Rash": Note on a New Cleansing Mixture, J. A. M. A. 121: 192 (Jan. 16) 1943. 11. Schwartz, Louis: An Outbreak of Halowax Acne ("Cable Rash") Among Electricians, J. A. M. A. 122: 158 (May 15) 1943. 12. Nakauchi, Y.: Acneform Lesions, Jap. J. Dermat. & Urol. 48: 87 (Oct.) 1940. Schwartz, Louis: Personal communication to the author.

13. Drinker.¹⁰ Schwartz and Peck.⁵

Prevention.—1. Workers engaged in stripping the cables should wear hood respirators containing proper filters. Where hoods cannot be worn, proper ventilation should be installed to remove fumes and dust.

2. The exposed parts, such as the face, should be covered with protective ointments of the invisible glove type reinforced with inert powders. Clean coveralls should be supplied daily and must be laundered by the plant or the shipyard. It is important that the underclothes should be cleaned daily also.

3. Adequate washing facilities should be provided, and taking showers at the end of the working day should be compulsory. Workers should be instructed to wash their hands thoroughly before eating lunch, and no smoking should be allowed without similar precautions being taken. The soap furnished the workers should preferably contain one of the synthetic wetting agents, such as one of the duponols (a group of higher aliphatic alcohol sulfates and derivatives of them) or santamers (alkylated argylsulfonates), which will remove soil more easily than ordinary soap.

Treatment.—The only way to remove the cysts is by manual expression. Keratolytic local applications are not sufficient to remove them. In most cases use of x-rays is not indicated, because the patients have dry skins and it is not a question of reducing the activity of the sebaceous glands as it is in acne vulgaris.

DERMATOPHYTOSIS AND OCCUPATIONAL DERMATITIS

JOHN G. DOWNING, M.D.

BOSTON

One hundred years ago ridicule blasted the researches of Gruby, the founder of medical mycology. Fifty years later the discovery of bacteria overshadowed a brilliant revival by Sabouraud, who established a clinical differentiation of dermatophytes which still endures. New interest after World War I brought forth such a surge of literature on this subject that the old waste basket of dermatology, eczema, was replaced by the catch-all labeled fungous infections. Endemics of ringworm encouraged laboratory studies, and the finding of a threadlike strand or a small round body in a scraping or a filamentous growth on a culture medium was sufficient to assure the dermatologist that a cutaneous outbreak was a fungous disease. Molds and yeasts assumed a new role. Koch's laws were disregarded, and investigators attached their names to previously known fungi merely because change of medium, single spore transplant or environment had produced a change in color or a difference in the shape or the size of the spores; the nomenclature became so confused that medical mycology was again threatened with discredit.

The study of fungi is confusing because so little is known about the life cycles of the fungi that it is impossible to place them in a proper classification. They belong to the plant kingdom, which is divided into four groups: the thalluses, the mosses, the ferns and the seed plants. Thalluses are divided into algae and fungi, according to the presence or the absence of chlorophyll. All algae contain chlorophyll and are therefore free living, while fungi lack this substance and become parasitic, living on other organisms, or saprophytic,

living on dead remains of other organisms. In man fungi live on dead tissue, i. e., the horny layer of the skin. They are classified according to the method of producing spores. These may be either sexual (perfect) or nonsexual (imperfect). The imperfect group includes many important organisms: the various molds of bread and cheese, plant pathogens, mildews that rot cloth and those fungi that cause disease in man.

Mycotic diseases of man may be superficial or deep seated. The superficial infections, or dermatomycoses, are due to the dermatophytes, which may be classified as *Microsporon*, *Epidermophyton*, *Trichophyton* and *Monilia*. The deep seated infections are due to *Actinomyces*, *Sporotrichum*, *Blastomyces*, *Coccidioides* and *Phialophora*. Any of these might cause primary fungous infections in those who till the soil or who contact plants, hay, straw, animals or their by-products, feathers, silk, wool and leather. When fungi are regularly found in an occupational contact, it is reasonable to assume that the worker suffering from infection with organisms peculiar to his work has an occupational disease.

Those exposed to the superficial infections are those who tend and care for pets; they acquire microsporiasis. Even clerks are not exempt—a small group of girls selling shoes were reputed infected by *Achorion quinckeanum* from mice who infested the shop.¹ Swimming pool and bath house attendants and workers employed in plants equipped with public showers may acquire epidermophytosis. Dairy men and herders may suffer from trichophytosis due to an ectothrix. Bakers, preserve packers, fruit handlers and dishwashers show yeastlike organisms resembling *Monilia*. The deep-seated infections are usually found in tillers of the soil, cattlemen, florists, horticulturists, wood handlers and research workers.

CLASSIFICATION

The superficial lesions may appear as the polygonal or ringed scaly patches of microsporiasis or the macerated, vesicular, hyperkeratotic types seen after infection of the glabrous skin by *Epidermophyton* and *Trichophyton* or the severe inflammatory nodular reactions produced by the ectothrix or seen in trichophytosis. Dermal moniliasis is found in the flexural folds of those whose skin is constantly wet, as the skin between the fingers of dishwashers and salad makers (*erosio interdigitale*), in the periungual skin of fruit canners, on the feet of workers in sewers or laundries. A glossy, livid red, oozing cutaneous surface or a peculiar, sharply defined paronychia swelling suggests a yeast infection.

The deep-seated infections are essentially granulomatous reactions. *Sporotrichosis* starts as an ulcer at the site of the prick of a plant barb; later cutaneous and subcutaneous nodules appear. The lumpy, boggy jaw of the farmer suggests actinomycosis. The laborer's swollen foot showing nodules and sinus formation prompts one to look for granules of gray, red or black fungi. The discharge from the indolent ulceration of the agriculturist recently migrated from California may disclose the double contoured *Coccidioides*, or a biopsy specimen from a crusted warty growth in a paper mill employee may yield the characteristic budding cell of *Blastomyces*.

Industrial physicians should know not only the fungi to which the worker is exposed but also those peculiar

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1. Polano, M. K.: Epidemic of Mouse Favus at The Hague, Nederl. tijdschr. v. geneesk. 82:2114 (April 30) 1938.

to his previous occupation and make cultures or perform a biopsy when indicated. Primary fungous infections are easily discovered, but proving that they occurred in the course of a worker's employment may be difficult. They vary according to location. In Massachusetts they are rare.

The dermatologist trained to be cognizant of occupational exposures and of compensation legislation has little difficulty with the status of mycotic infections. Difficulties arise only when a worker presents a sharply defined patch of dermatitis which is diagnosed as dermatophytosis by an industrial physician or an inexperienced dermatologist. Then the insurer, the commissioner and, in these days of high wages, even the patient must be shown by careful explanation of the contacts, the patch tests, the laboratory studies and the removal from exposure with resulting cure that the dermatitis was an industrial dermatitis. Persistent eruptions on the hands are frequently said to be fungous infections. Ayres and Anderson² after sixteen years' careful study of inflammatory eruptions of the hands stated "Without confirmatory evidence or dermatological experience a diagnosis of fungous infection of the hands stands an 88 per cent chance of being wrong. Even with a great deal of dermatological experience a positive diagnosis of fungous infection of the hands is very difficult without laboratory evidence." Comparing the reported tremendous incidence of fungous infection in California³ with the incidence in Massachusetts, I do not hesitate to state that unproved diagnoses of fungous infections of the hands alone in Massachusetts would be almost 95 per cent wrong.

FUNGI AS SECONDARY INVADERS

One frequently hears or reads that an industrial dermatitis persists because of secondary infection with fungi. Direct microscopic or cultural proof is rarely presented. The hands and feet of 406 patients with contact dermatitis persistent for three months or more were examined by trained mycologists working under my supervision. Direct microscopic examination of scrapings showed fungous infection of the hands of 5, and cultures showed fungous growths from the hands of 2, both methods demonstrating *Monilia albicans*. Trichophyton was demonstrated in material from the feet of 3 patients, and *M. albicans* in material from the feet of 4. Dermatophytes do not find the site of active inflammatory industrial dermatitis a suitable terrain for growth; the secondary invaders are pyogenic bacteria. A person suffering from a contact dermatitis is no more subject to mycotic infection than one with normal skin. Fungi pathogenic to man are not found on all normal skins; careful mycologic studies on 100 persons revealed a pathogen on the skin of only 2 per cent, namely *Trichophyton*, on the skin of 2; not 1 person was found infected with *M. albicans*.⁴ Certain types of molds and yeastlike bodies have been found persistently in certain occupational rashes due to the presence of these organisms in the contacts, but that does not prove that these saprophytes are the pathogens. For example, workers picking or packing fruits or vegetables suffer eruptions due to the irritating action on the skin of the

fruit, the juice and moisture, with resulting maceration of the interdigital and paronychia tissue. This dead tissue maintains these saprophytes, but they are not necessarily the causative factors of the original eruption. Mechanical irritation from molds may occur also among those handling dried fruits and among gatherers of crops such as sugar cane, stalk, straw, hay and raw cotton. A growth of *Aspergillus* may be found on the skin of various parts of the body, even in the nose and the ears. True pathogens, such as *M. albicans*, *Trichophyton* and *Epidermophyton*, are seldom found as secondary invaders of the sites of occupational dermatitis.

SENSITIZATION

The role of cutaneous sensitization resulting from a primary focus of fungous infection is well established. Williams⁵ demonstrated that lesions of the hands may result from dissemination of fungi or their products. These lesions he called dermatophytids. It has been proved that these may result in the ordinary course of the disease or may be precipitated by local irritation of the original focus by therapy, friction or injury or by intradermal injection of a biologic product such as trichophytin. The "ids" are symmetrical, and careful research has failed to demonstrate fungi in them. The patients show multiple hypersensitivity to exogenous and endogenous factors.⁶ The mere presence of these lesions on the hands produces sites of lowered resistance sufficient to break the skin and allow the mechanical and the chemical contacts of industry to aggravate the original eruption. In many cases of so-called occupational cutaneous dermatitis the lesions are merely aggravations of previous mycotic infections. Sensitization due to distant fungous infection such as that on the feet may be an important factor in the precipitation of certain types of local reactions. Several excellent studies have been made on this type of complication in industry.

Kammer and Callahan⁷ concluded that there probably was an interrelationship between dermatitis from contact with torch oil and the existence of a focus of superficial fungous disease, because this type of dermatitis was not seen in workers who did not have interdigital epidermomycosis of the feet. Fungi were recovered from lesions of the hands of 2 of 22 patients with torch oil dermatitis. "The clinical course of the affliction closely simulates fungous disease, and therapeutic measures ordinarily employed in the treatment of epidermomycosis are of unusual value in torch oil dermatitis." However, their final conclusion is "The demonstration of a focus of fungous disease is not enough to warrant the incrimination of that infection in the development of an industrial dermatosis. Such foci probably exist almost universally among laborers at the present time." While I do not agree with the authors in regard to the last sentence, still in a plant with shower bath facilities fungi may spread and involve most of the workers. One must not put too much reliance on patch tests with torch oil. I believe that with sufficient exposure torch oil acts as a primary irritant; 4 controls who had no dermatitis were patch tested, and all gave a 3 or 4 plus reaction. A primary irritant does not need a predisposing factor

5. Williams, C. M.: The Diagnosis of Some Eruptions on the Hands and Feet, *Arch. Dermat. & Syph.* 5: 161 (Feb.) 1922.

6. Stokes, J. H., and Kulchar, G. V.: The Infection-Allergic Complex in Arspenamine Dermatitic Reaction, with Special Reference to Dermatophytosis, *Brit. J. Dermat.* 46: 134 (March) 1934.

7. Kammer, A. G., and Callahan, R. H.: Torch Oil Dermatitis: Its Relation to Epidermomycosis, *J. A. M. A.* 109: 1511 (Nov. 7) 1937.

2. Ayres, S., Jr., and Anderson, N. P.: So-Called Fungus Infections of the Hand, *California & West. Med.* 56: 63 (Feb.) 1942.

3. Legge, R. T.; Bonar, L., and Templeton, H. J.: Incidence of Foot Ringworm Among College Students, *J. A. M. A.* 92: 170 (July 20) 1929.

4. Downing, J. G.: Investigation of the Fungous Flora of Apparently Normal Skins, *Arch. Dermat. & Syph.* 35: 1087 (June) 1937.

despite the fact that these workers apparently were so predisposed. A history of lack of previous infection is not reliable, as the patient may fail to recognize a primary focus which is not bothersome.

Norwood and Evans⁸ after investigating 20 cases of dermatitis occurring in workmen wearing for many hours daily leather gloves which were dipped in a solution of soap chips and glycerin came to the following conclusion: "The dermatitis has been shown to be caused by two factors: the traumatizing effect of the gloves; allergic sensitization of the hands due to the presence of dermatophytosis elsewhere. Clinical evidence of fungous disease of the feet was found in every case. Since dermatophytosis of the feet is almost universal among industrial workers, many of whom must wear leather gloves for protection, we believe that glove phytid will be recognized with great frequency." Constant contact with any form of soap may be a frequent cause of dermatitis.

The increasing number of cases of dermatitis occurring among plate printers prompted an investigation by Neal and Emmons⁹ in a plant employing 1,091 workers. Extensive mycologic studies were done on 354 workers. The percentage of positive findings was as high among those unaffected as among those affected. They stressed the difficulties encountered in making a diagnosis of dermatophytosis from the clinical appearance; no dermatophytes were found by direct examination or by culture of material from the hands of any of the men with dermatitis. They concluded from their survey that among these workers the potential hazards for the skin were, first, direct factors—the mechanical friction, the abrasive and the drying action of the cleaning materials used on the plates and on the workers' own hands and the follicular plugging with ink; second, chemical factors—the inks, the solvents, the potassium carbonate and the soaps; third, infections—both fungous and bacterial. The indirect factors were the mechanical and the chemical agents mentioned, which may cause the hands of plate printers having dermatophytosis of the feet to become more susceptible to dermatophytid reaction and that it is possible that dermatophytosis of the feet may increase the plate printers' allergic susceptibility to the inks.

The aforementioned investigation might be compared with an unpublished study of dermatitis among tack makers which I made on two occasions, ably assisted by Dr. Louis Schwartz of the United States Public Health Service on the first occasion. In a tack factory in which about 300 workers were employed cases of dermatitis had occurred for the past eighteen years despite various studies and the installation of preventive and therapeutic measures. The cases of most serious and persistent dermatitis were among the skilled mechanics, the tack makers.

The tacks are made from sheet steel and brass which have been scaled by a weak solution of sulfuric acid, washed and then dipped into a solution of lime (calcium oxide), which remains as a white coating that acts as a lubricant for the cutting machines. These sheets are gaged, trimmed and cut into strips called tack plates, which are inserted into the automatic tack machine.

The tack machine cuts a piece from the tack plate, drops this piece into a mold to be molded into the proper shape, passes it into another part of the machine which puts a head on the tack and then the finished tack is dropped from the machine. The tack makers are responsible for the proper operation of the machines; they must understand the working of every part and be able to clean, adjust and repair these machines. They are intelligent, well paid workers and will not stop work until it is absolutely necessary. They contact lime, kerosene, oil, grease, and suffer friction. Their hands become dry and fissured, and they have recurrent outbreaks of vesicles. Previous chemical analysis proved that the lime at this plant was 2.8 per cent stronger in total alkalinity than that used at a similar plant. Eighteen of 21 patients gave a positive reaction to the lime. Fifteen of these workers showed positive clinical evidence of dermatophytosis; 3 others showed no evidence of fungous infection but gave positive reactions to the lime. Extensive mycologic studies on the men, the machine oil and the grease revealed the usual bacteria, saprophytic yeasts and molds. Lime and dirty kerosene contained large numbers of spores of bacteria and hyphal fungi, showing that spores can remain viable in them and that they would be good mediums for holding and transmitting living spores. Direct examination of hands showed fragments or mosaic forms in 5 cases, not sufficient to be declared positive evidence for dermatophytosis. The feet of 12 workers gave positive findings and the feet of 3 positive cultures—*Epidermophyton floccosum* in the case of 1 and *Trichophyton mentagrophytes* in that of 2.

It was apparent that several factors were involved: the lime, the mechanical and the chemical effect of the cleaning and the repairing of the machines, the continued exposure after the dermatitis had developed, and in the majority of those affected the presence of fungous infection elsewhere. Most of these cases had a history of several years' duration. The installation of more of the hygienic facilities and practices recommended for both the plant and the employees plus the therapeutic measures generally employed in the treatment of dermatophytosis produced a temporary improvement. However, the lime was not changed and the other factors remained, so that these old cases still persisted and new ones appeared.

LEGAL ASPECTS

In Massachusetts a fungous infection of the skin is considered a disease and not compensable.¹⁰ The act provides only for a personal injury arising out of or in the course of employment. Fungous infections occur irrespective of occupation. However, if a fungous infection can be shown to be a natural result of trauma originating at work or a secondary infection of the site of a previous industrial dermatitis, or if it can be demonstrated that the work aggravated a preexisting dermatomycosis that was a result of trauma or of the working conditions, the board recognizes these facts in its decision and finds that the dermatomycosis is a result of an injury resulting from the worker's employment. The decisions are reasonable and practical, and if there is no evidence that the work would aggravate the disease the patient has little support for his contention that such aggravation is present.

8. Norwood, W. D., and Evans, E. E.: Industrial Dermatitis from Gloves; Effect of Dermatophytosis (Ringworm); "Glove Phytids," J. A. M. A. 114: 1523 (April 20) 1940.

9. Neal, P. A., and Emmons, C. W.: Dermatitis and Coexisting Fungous Infections Among Plate Workers, Public Health Bulletin 246, United States Treasury Department, Public Health Service, 1939.

10. Downing, J. G.: Analysis of Claims in Industrial Dermatoses, J. A. M. A. 111: 1536 (Oct. 22) 1938.

In a former review of 2,000 cases 179 were deemed dermatophytosis and therefore not compensable.¹¹ These were disputed less than one would expect, for the patient is usually aware that the disease started on an unexposed area such as the feet, often knows or suspects the diagnosis, has had previous attacks, knows of no irritants in his work and is frequently seeking advice rather than compensation. Among 1,433 patients with industrial claims encountered in private practice from 1938 to 1942 there were only 142 (about 10 per cent) who showed any clinical evidence of fungous infection; the feet of all the patients, men and women, were examined, the men completely stripped, and the women when indicated. Interdigital maceration, onychomycosis, orange colored hyperkeratosis, vesicular lesions and scaling of folds of the skin were noted; scrapings and cultures were made in questionable cases. Fifty-one showed evidence on the feet alone; 31 more had lesions of the palms and of the lateral aspects of the fingers also; 9 showed scaly lesions on the body and on flexural folds, and 4 on the hands alone; 51 more had compensable aggravation or concomitant industrial dermatitis. Ninety-one persons were deemed to have lesions not related to occupation, most of them being clerks. However, even they may have had an attending industrial complication; for example, in 1 girl sensitized by her white gold ring dermatitis of the palm developed from contact with the nickel plated handle of her comptometer; in 2 other employes dermatitis developed from rubber fingercoats, and in 1 employee, from the cream used to remove the ditto ink. The other cases were associated with occupations entailing wet work, friction, contact with solvents, detergents and cutting oils, the patients being bartenders, soda fountain clerks, printers, dyers, machinists and fruit and vegetable handlers. Two patients had aggravation of their dermatophytosis because their feet were constantly wet from insanitary plant conditions and 8 from superimposed trauma. Dermatophytosis is a disease of males; only 23 females were affected. Ninety, or 75 per cent, of the patients with dermatophytosis were American born; 78 were under 30 years of age; 62 were clerks, showing that it is predominantly a disease of the white collar class, those who get their exercise in gymnasiums or on golf courses. There were only 3 laborers.

As to deep-seated infections, biopsy specimens are of more value than scrapings and smears or cultures. Biologic extracts are of doubtful value. Previously it was thought that a negative reaction to trichophytin was valuable in that it ruled out fungous infection, but it has been shown that this test may be negative in the presence of active mycotic findings.¹² A careful history, knowledge of occupational exposures, patch tests and trained clinical observations are the main essentials for diagnosis.

DIFFERENTIAL DIAGNOSIS

It is the superficial fungous infections of the hands that cause confusion. Therefore a discussion of various disturbances of the hands might be in order. Dermatomycosis appear spontaneously and are pinhead size vesicles with thick walls. They are symmetrically placed on the lateral aspects of the fingers and on the thenar and hypothenar eminences; occasionally they involve the entire palm, rarely the dorsum of the hand.

Pustular psoriasis or a recalcitrant vesicular eruption of the palms is so rare that it is usually thought of only because of its duration. Contact dermatitis shows usually areas of erythema, scaling, thin walled vesicles, papules and wheals, an ill defined eruption rarely symmetrical, usually involving the dorsa and starting on one area and spreading slowly or rapidly. Bacterial infections follow previous dermatitis or trauma and are indolent, pustular and crusted. The avalanches of mycology almost removed the names "cheiropompholyx" and "dyshidrosis" from dermatology, but the entity composed of deep-seated sago grain-like vesicles, appearing suddenly and disappearing with or without treatment, has regained recognition.

A peculiar eruption appearing on the dorsa of the hands and the anterolateral aspects of the extremities is beginning to be recognized by industrialists because of its resistance to treatment and because it is so commonly mistaken for industrial dermatitis. The lesions start as a group of vesicles rapidly becoming a brilliant red elevated circular oozing patch which involutes

PRESCRIPTION 1.—Soothing Salves

	Gm. or Cc.
Zinc oxide.....	2
Cornstarch.....	10
Petrolatum to make.....	30
or	
Solution of aluminum acetate.....	10
Hydrous wool fat.....	20
Paste of zinc oxide.....	30

PRESCRIPTION 2.—Stimulating Applications

	Gm.
Juniper tar.....	2
Zinc oxide ointment.....	20
or	
Crude coal tar.....	2
Zinc oxide.....	2
Cornstarch.....	15
Petrolatum.....	15

by clearing in the center, extending peripherally until healing occurs, or the patches persist and enlarge until they may involve 5 or 6 inches of the arm or the entire dorsum of the hand. This disease has been called nummular eczema, eczema parasitica or orbicular eczema.

TREATMENT

The sulfonamide compounds have no place in the treatment of uncomplicated industrial dermatitis. There is no proof of their being of value for fungous disease. To date I have seen over 300 serious cutaneous reactions from their use, oral or local, the majority being from their use in an ointment base. When a patient with an occupational dermatitis is referred by an insurer for treatment and has a fungous infection also, it is advisable to institute treatment for both disturbances in order to clear up the former. Usually the treatment may be complicated, but as these patients are unable to work they have the time necessary for the care of their skin. If the eruption is vesicular, wet dressings of solution of boric acid or solution of aluminum acetate are prescribed for the first twenty-four hours for the hands and arms, while the feet may be soaked in a solution of potassium permanganate 1:5,000. If there is evidence of infection on the hand, the solution of

11. Downing, J. G.: Cutaneous Eruptions Among Industrial Workers, Arch. Dermat. & Syph. 29:12 (Jan.) 1939.
12. Tolmach, J. A., and Traub, E. F.: Epidermophytids and Trichophytin Reaction, Arch. Dermat. & Syph. 28:560 (Oct.) 1933.

potassium permanganate may be used in both areas. After forty-eight hours calamine lotion is applied, followed by a soothing salve, such as one of those given in prescription 1. Phenol or menthol may be added if there is pruritus. The patient should continue to apply wet dressings for half an hour twice a day. As the skin becomes dry, application of boric acid ointment may be indicated. After ten days to two weeks stimulation is needed in the form suggested in prescription 2.

When there is interdigital maceration or desquamation under the toes or the arch an ointment such as the one given in prescription 3 is applied morning and night, the excess removed and then a powder dusted over the skin, such as the one given in prescription 4. Menthol or camphor might be added if there is much pruritus. Isolated vesicular patches may be treated with alcoholic solution containing salicylic acid 5 per cent, iodine 2 per cent or thymol 5 per cent. Yeast infections respond best to dyes, such as gentian violet or triple dyes. The deep-seated infections call for iodides in large doses. The use of biologic extracts has been disappointing and may exacerbate the eruption. Roentgen radiation in doses of 75 roentgens every five days for six to eight treatments will relieve

PREScription 3.—*Ointment for Desquamation*

	Gm.
Salicylic acid.....	2
Precipitated sulfur.....	2
Petrolatum.....	30

PREScription 4.—*Dusting Powder*

	Gm.
Salicylic acid.....	0.6
Boric acid.....	40
Talc.....	120

many patients, provided the application of suitable topical remedies is continued. Roentgen radiation should be given only by a trained dermatologist.

Fungous infections do occur in occupation even though in certain localities they may be rare. Industrial physicians should be cognizant of them; at least they should know those endemic to the neighborhood of their workers. Mycotic infections are already problems in military camps. Previous to the last war such infections were endemic in various parts of the tropics. Hence it was brought by seasoned veterans to camps and later spread to various communities. For the past few years there has been a lull in its advance, but now with the regimentation of men in the armed forces and industry it is again assuming serious proportions. Physicians in industry should attempt to institute an effective program for the prophylaxis of fungous disease. Many may regard dermatophytosis as a trivial disease. However, a mycotic focus may be the port of entry for pyogenic organisms with resulting lymphangitis, adenitis, abscesses, erysipelatous eruptions, cellulitis and severe dermatitis resulting from medication or sensitivity produced by their presence and precipitated by industrial exposures. Fungous infections are serious, for they may interfere with the efficiency of our industrial all-out effort for victory.

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VACCINATION AGAINST WHOOPING COUGH

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SKÚLI THORODDSEN

AND

HREIDAR ÁGÚSTSSON

From the literature on pertussis vaccination it is difficult to attain an unbiased opinion as to the value of this prophylactic measure. On the one hand there are authors, like Sauer¹ and Silverthorne, who report excellent results; on the other hand there are those who have only negative or doubtful effects to report (Doull²).

Table 1, taken from a recent publication by Toomey,³ is a survey of different publications on this subject.

All these reports have the same problem to face, which some authors try to solve, others not, namely the rate of exposure to infection after vaccination. In a community where whooping cough is always existent and flares up periodically, the rate of exposure among a great number of children must necessarily be difficult to grasp numerically. If the children are vaccinated between epidemics, months and years may pass before they are exposed to infection, and by that time the immunity once acquired may be greatly reduced or lost.

In Iceland conditions are different. Here whooping cough spreads as an epidemic all over the country, usually at intervals of about seven years, to die out completely when it has attacked practically all persons who either had not been born or had escaped exposure in former epidemics. This takes from six to twelve months, and then the disease is not seen for years in the whole country.

In Iceland the rate of exposure is therefore not such an uncertain factor as in the aforementioned reports, for it can be safely assumed that practically every child born since the last epidemic has not been in touch with whooping cough and will be exposed during the next epidemic.

Our difficulties are of another nature. When pertussis once is introduced, it spreads like a fire, and everybody wants to have his children vaccinated at once. Our problem is therefore to be able to produce a great quantity of vaccine in the shortest time possible and have the children vaccinated as soon as possible after the first case appears. The demand for vaccine is so enormous, when everybody wants vaccine at once, that we have several times lagged behind in the production, which under such conditions is so strained that infection in one bottle of a prepared suspension may mean a serious delay in the rapidity with which the immunization is carried out.

PRODUCTION OF VACCINE, STRENGTH AND DOSAGE

As soon as pertussis bacilli had been isolated from the first patient, who had doubtful clinical symptoms, production of vaccine was started. After forty-eight hours' incubation on Bordet's glycerin-potato-agar, containing 10 per cent human blood, the culture was

From the Department of Pathology and Bacteriology, University of Iceland, Reykjavik.

1. Sauer, L.: Present Status of Preventive Inoculations Against Whooping Cough, *Am. J. Dis. Child.* 54: 979 (Nov.) 1937.

2. Doull, J. A., and others: Active Immunization Against Pertussis: Final Report on Cleveland Immunizations of 1934-1935, *Am. J. Dis. Child.* 58: 691 (Oct.) 1939.

3. Toomey, J. A.: Active Immunity: Preventions Against Smallpox, Diphtheria, Whooping Cough, Tetanus and Typhoid, *J. A. M. A.* 119: 18 (May 2) 1942.

controlled microscopically for pureness and also to ascertain that it was in phase 1, after which it was suspended in isotonic solution of sodium chloride with merthiolate in a dilution of 1:10,000. From a great number of culture dishes a suspension was made in one bottle, which was machine shaken at short intervals for twenty-four to forty-eight hours. After bacteriologic tests had proved the sterility of the suspension, it was standardized nephelometrically and dispensed in rubber-capped vials. All the vaccinations were done by the practitioners of the country.

Most authors recommend that the vaccine be standardized at 10,000 million organisms per cubic centimeter, and some have even recommended 20,000 million. In America such a vaccine has been administered at one or two week intervals, 1 to 3 cc. being injected at a time and this dose repeated five or six times. It has been claimed that 60,000 to 100,000 million organisms were required to afford sufficient immunity, and as is seen from the survey in table 1, most authors have given a total of 80,000 millions. With our limited facilities it would have been utterly impossible to carry out a general immunization along these lines. Only a small fraction of the children could

TABLE 1.—*Vaccinations Against Pertussis Reported by Different Authors*

(From Toomey)

Author	Year	Dose 1,000 Million per Cc.	Vaccinated			Not Vaccinated		
			Ex- posed No.	At- tected	Per Cent	Ex- posed No.	At- tected	Per Cent
Silverthorne....	1938	120	747	91	1	161	27	85
Kendrick.....	1939	80	1,815	415	52	2,497	503	69
Miller-Fuber....	1939	80	211	29	9	182	32	96
Sauer.....	1939	80	2,453	...	22	...	286	...
Singer-Brooks...	1939	80	272	42	7	1,730	71	87
Doull et al.....	1936	80	483	...	61	466	...	71
Siegel et al.....	1937	80	101	17	9	110	47	46
MacLean.....	1939	16-20	513	46	0	154	115	77

have been vaccinated with such a great quantity of vaccine, and to decide which children should be immunized and which not would have led to severe and certainly not unfounded criticism.

We decided to standardize all vaccine at 8,000 million organisms per cubic centimeter and recommended four injections of this vaccine at intervals of four to seven days, beginning with 0.5 cc. followed by three injections of 1 cc. With this procedure each child would receive a total of 28,000 million organisms in the course of twelve to twenty days. This is a much shorter time than most authors recommend, but we had no alternative, for we knew that within a month the disease would be all over Reykjavik and spreading out into the country. As we wanted quick immunity we did not use aluminum hydroxide in our vaccine which certainly enhances the effect considerably; but, as it retards the absorption correspondingly, we thought it might have a slowing effect on the process of immunization and so omitted it, although we would not have hesitated to use alum precipitated vaccine if we had been able to spread the injections over a longer period.

Reactions from the vaccinations were negligible. A few children had a slight redness and even a perceptible swelling at the site of injection, but no major reaction was noted.

RESULTS

In order to obtain as reliable results as possible two of us (S. T. and H. Á.) visited the homes of the children who had been vaccinated. The mothers were usually found to be able to give reliable information,

and sources of information which appeared to be unreliable (only a few) were omitted. Care was taken to ask questions in such a way as to avoid all kinds of suggestions in order to obtain as unbiased answers as possible. At the same time reports were taken of unvaccinated children for comparison as controls.

TABLE 2.—*Degree of Pertussis*

	Number	Per Cent
Unvaccinated controls		
No pertussis.....	6	4.9
Mild pertussis.....	69	49.2
Medium pertussis.....	42	24.4
Grave pertussis.....	14	11.5
	122	
Vaccinated children		
No pertussis.....	215	28.2
Mild pertussis.....	331	49.5
Medium pertussis.....	159	16.9
Grave pertussis.....	41	5.7
	746	

During this epidemic about 5,000 children were vaccinated in Reykjavik. Of these we were able to trace and obtain what was considered reliable reports on 888. Practically all these children were between 0 and 8 years old. Of this number 118 fell sick before vaccination was finished, which was considered to be one week after the fourth injection.

In the reports a distinction is made between mild, medium and grave pertussis. In this report "mild" means no paroxysms; "medium" five to ten attacks in twenty-four hours, and "grave" more than ten attacks in twenty-four hours or pneumonia.

Of the unvaccinated children 38, or 31 per cent, had fever for a shorter or longer period and only 160, or 20 per cent, of the vaccinated. The average duration of sickness among the unvaccinated controls was 9.8 weeks, but 8.1 weeks among the vaccinated. Pneumonia was noted in 4, or 3.3 per cent, of the controls and in 12, or 1.6 per cent, of the vaccinated group.

Partly Vaccinated Group.—Some children fell ill immediately after the first injection, others not until after the fourth injection had been given. Those who were affected within a week from the last injection are contained in this group, as they had evidently been infected long before vaccination was finished. As was to be expected, the results in this group fall in between the two others (table 3).

Thirty-three of these children, or 28 per cent, had fever. Pneumonia was noted in 6, or 5.1 per cent.

TABLE 3.—*Partly Vaccinated Children*

	Number	Per Cent
No pertussis.....	7	5.9
Mild pertussis.....	77	65.2
Medium pertussis.....	24	20.3
Grave pertussis.....	10	8.6
	118	

COMMENT

The results of our vaccinations show a difference of attack rate and a difference in the course and behavior of the disease which must be attributed to the vaccination. An epidemic of whooping cough always means a great increase in child mortality, and every means of combating it effectively must be welcomed. If we compare grave and medium pertussis among the vaccinated and controls we see that 46 per cent are subject to the disease, with more or less paroxysmatic

attacks among the unvaccinated but only 22 per cent among the vaccinated. The rate of fever and pneumonia is also lower among the vaccinated, although the duration of the disease is not much shortened (by 18 per cent), but this is difficult to determine, as is readily understood when it is remembered that spasmodic attacks may accompany catarrhal infections of various origins after recovery from the pertussis.

The results would in all probability have been better if we had not been compelled by the situation to employ a comparatively weak vaccine in the shortest possible time. But in spite of this disadvantage they indicate clearly that vaccination is of undoubted value as a prophylactic measure against whooping cough.

SUMMARY

Of 888 children between 0 and 8 years vaccinated against whooping cough, 28.3 per cent of 770 fully vaccinated got no pertussis, 49.5 per cent mild pertussis, 16.9 medium pertussis and 5.3 per cent grave pertussis. Of 122 unvaccinated controls the corresponding numbers were 4.9, 49.2, 34.4 and 11.5 per cent. Owing to special conditions in Iceland there could be no doubt about exposure after vaccination, as practically every child was exposed.

2 East 86th Street.

CONGENITAL CYSTIC DILATATION OF THE COMMON BILE DUCT WITH SEQUELAE

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AND

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This is a review of the literature, report of a case and subsequent examination after one year.

The many unusual features of the condition lead us to believe that the discussion and report of this case will be of help to others when confronted with a similar problem.

The rarity of the condition is attested by the fact that a complete review of the literature by Ziminger and Cash¹ revealed only 109 cases reported up to January 1932. Since their report was published, we have found cases reported by Swartley and Weeder,² Walton,³ Weeder,⁴ McWhorter,⁵ Hamilton⁶ and Poate.⁷

There is a striking fact that, of the cases reported, 80 per cent were present in the female and the greater percentage of all the cases was found in children.

ETIOLOGY

Nothing can be offered as to a definite cause of cystic dilatation of the common bile duct, although most authors consider it to be of congenital origin. The predominance of the condition in children and the

anatomic structure of the common bile duct make one consider the similarity between this condition and congenital hypertrophic pyloric stenosis.

Cases have been reported in which definite anatomic anomalies were found to exist in or adjacent to the common bile duct, such as adenomas of the pancreas, pressure on the common duct due to enlarged tuberculous mesenteric glands, congenital weakness of the wall of the duct or congenital narrowing of the intraduodenal portion of the duct; also the presence of a fold over the mouth of the intraduodenal portion of the duct, which acts as a valve. Papilloma of the ampulla has been also reported. The great predominance of cases shows no abnormality except that of the common duct per se.

PATHOLOGY

It is interesting to note the similarity in the pathology of the reported cases. In all the reports there was a large, tense, spherical cystic tumor of the upper right quadrant of the abdomen just below the liver, which displaced the stomach to the left and the duodenum also to the left and down. This tumor mass at times was seen to be in front of and sometimes behind the duodenum but always retroperitoneal. It is interesting to note that the gallbladder was invariably normal in size or occasionally smaller than normal.

The size of the cysts reported varied tremendously. Heiliger reported a case in which the cyst measured 2.5 by 3 cm., while the largest reported by Reel and Burrell⁸ contained 8 liters.

The wall of the cyst in all cases was definitely thickened, although the degree varied considerably. The wall in all cases was vascular and seemed to have a great amount of fibrous tissue present. It was noted on microscopic examinations that the presence of epithelium varied from being totally absent to cases in which it was scarcely present. "The rapid disintegration of the epithelium that lines the larger biliary passages is well known, and it is not unreasonable to suppose that this has been a factor in the large number of instances in which no epithelium was found."

The microscopic examination of the cyst wall showed it to be largely composed of connective tissue.

Ziminger and Cash reported that in only 1 case was the opening of the cyst into the duodenum demonstrated.

The characteristics of the distal end of the cyst are diversified. In 17 cases a valvelike fold was found at the outlet, with a similar fold also present over the mouth of the hepatic and cystic ducts. An abnormal course of the duct through the duodenum was frequently noted. In 11 reports there were one or more sharp kinks and in 13 there were present a narrowing or stenosis. Cases have been reported in which no opening was found entering the duodenum, while other authors reported that the opening from the cyst into the duodenum was demonstrated only at autopsy.

The contents of the cysts varied from those in which normal bile was found to those in which the fluid was definitely infected. No evidence of the presence of stones is noted in the literature.

The condition of the liver varied, depending on the duration, characteristics and degree of obstruction. The liver has been found to be deeply jaundiced, to be normal, to be enlarged; also where there was evidence of biliary cirrhosis or where interstitial hepatitis was found.

From the pediatric and surgical clinics of the Mercy Hospital, operated by the Sisters of Mercy, Baltimore.

1. Ziminger, M. M., and Cash, J. R.: Congenital Cystic Dilatation of the Common Bile Duct, *Arch. Surg.* 24: 77 (Jan.) 1932.

2. Swartley, W. B., and Weeder, S. D.: Choledochus Cyst with a Double Common Bile Duct, *Ann. Surg.* 101: 912 (March) 1935.

3. Walton, J.: Congenital Diverticulum of the Common Bile Duct, *Brit. J. Surg.* 27: 295 (Oct.) 1939.

4. Weeder, S. D.: Choledochus Cyst with Double Common Bile Duct, *Ann. Surg.* 110: 55 (July) 1939.

5. McWhorter, G. L.: Clinical Use of a Plastic Pylorojejunostomy in Chronic Duodenal Ulcer, *Arch. Surg.* 30: 528 (March) 1935.

6. Hamilton, I.: Congenital Cystic Dilatation of the Common Bile Duct, *M. J. Australia* 1: 800 (May 27) 1939.

7. Poate, H. R. G.: Congenital Cystic Dilatation of the Common Bile Duct, *Australian & New Zealand J. Surg.* 11: 32 (July) 1941.

8. Reel, P. J., and Burrell, N. E.: Cystic Dilatation of the Common Bile Duct, *Ann. Surg.* 75: 191 (Feb.) 1922.

TREATMENT

The accompanying table of the types of treatment was compiled from the literature by Poate.⁷

SYMPTOMATOLOGY

The condition occurs predominantly among females. Its frequency among children and young adults is borne out by the fact that one author reports that of 69 patients 28 were infants and children under 10 years of age and 28 were between 11 and 20. The most important symptoms have been found to be (1) tumor, (2) jaundice and (3) pain. The presence of acholic stools is noted in a very small percentage of the cases reported. Fever was present in a few of the reported cases and, when present, the contents of the cyst were found to be infected.

DIAGNOSIS

When one is attempting to make a diagnosis with a tumor in the upper right quadrant of the abdomen, particularly as in the case we report, which was unassociated with jaundice and fever, the following possibilities are to be considered: (1) echinococcus cyst, (2) stone in the common duct, (3) mesenteric cyst, (4) pancreatic cyst, (5) cholecystitis, (6) enlarged gallbladder, (7) malignant growth, (8) tuberculosis and cyst of the kidney, (9) neuroblastoma, (10) cyst of the adrenal gland, (11) retroperitoneal tumor, (12) intestinal obstruction, (13) ovarian cyst, (14) catarrhal jaundice, (15) perforation of the gallbladder and (16) cyst of the liver. Even at operation the true condition was not recognized in a number of instances, and in nearly every one of these the termination was fatal.

REPORT OF CASE

History.—Z. B., a girl aged 6 years, first seen by one of us in the late afternoon of June 26, 1942, was complaining of severe pain in the upper right quadrant of the abdomen.

The family history was unimportant.

The patient had measles and pertussis at the age of 4 years, both uncomplicated. In July 1941 the child was sick for one week with an illness similar to the present, with pain in the upper right quadrant of the abdomen and vomiting. A physician who informed the parents that it was a mild case of appendicitis would not advise hospitalization unless the condition became more acute. The child gradually improved and was discharged in seven days. Since recovery from this illness, the child enjoyed perfect health with the exception of very mild pain in the abdomen of a transitory nature two weeks prior to hospitalization.

Present Illness.—During the day of June 24 the mother noticed that the child was not interested in playing and, on questioning, found that the child had abdominal discomfort. Later in the day the pain became so severe that the child doubled up and could not walk without bending over. There were three attacks of vomiting during the early part of the day, which were associated with a pronounced increase in the abdominal pain. From the cessation of this severe attack of pain up to the time of hospitalization the child ate poorly, had one normal defecation, voided urine naturally, preferred to remain in a recumbent position and was afebrile. There was no return of the sharp, colic-like abdominal pain as seen early in this attack.

Physical Examination.—The child was in a recumbent position when first seen, appeared to be very friendly, was cooperative and did not suffer pain. She was well nourished, of normal development for a child of 6 years, and did not appear to be very ill. Her temperature, pulse, respiration and color were normal. Complete physical examination gave entirely normal results except for the abdominal findings. It was noted that the child was more at ease with the legs slightly flexed, although

she could extend them without any great discomfort. Observation showed the skin of the abdomen to be of normal color, and the abdominal muscles were seen and felt to be in a state of mild tonicidity. A definite bulging was noted in the upper right quadrant of the abdomen, which was carefully examined. This apparent abnormal mass was dull to percussion, about the size of a small grapefruit, was smooth in outline, apparently was not movable, and was quite painful when pressed firmly by the examiner's fingers. The liver and spleen were not palpable. Pressure over the right kidney from behind failed to elicit a transmission of the pulsations. The possibilities as to the nature of the illness were discussed with the parents, and hospitalization was advised and procured at this time.

Attempt was made to ascertain the true nature of the trouble by pediatric and surgical consultations.

Urinalysis was normal; blood examination gave normal results except for a leukocytosis of 16,450; the differential count was normal. No further blood studies were made with respect to the biliary system because the probability of pathologic changes in this system was not suspected. It was evident, however, that no jaundice was present. X-ray examination of the abdomen three days after admission showed a dense soft shadow in the upper right quadrant and epigastric region. No calcareous deposits were shown. A gastrointestinal series with fluoroscopic examination showed no abnormalities except for the dense shadow shown on the plain plate but did show

Types of Treatment of Cases Reported in the Literature

Treatment	Number	Died	Recovered
No treatment	11	11	0
Aspiration	4	4	0
Drainage only	30	28	2
Drainage followed by secondary anastomosis.	17	5	12
Primary anastomosis of cyst to intestine.....	27	7	20
Excision of cyst: primary anastomosis of hepatic duct to intestine.....	4	2	2
Excision of cyst with drainage; secondary anastomosis to intestine.....	1	0	1
Excision or attempted excision of cyst, with or without drainage.....	8	7	1
Nature of operation not known.....	3	2	1
Total.....	103	69	38

that the pyloric end of the stomach and the duodenum was displaced to the left and down by this mass. An intravenous pyclogram (neoiopax was used) showed both kidneys functioning. On the left side the kidney and ureter were normal. On the right a normal kidney, pelvis and calices were indistinctly shown probably because of obscuration by a tumor mass seen to be present. The kidney and ureter were in normal position (no displacement).

It was noted that during the four days of observation there seemed to be a mild variation in the size of the tumor from day to day.

The final preoperative impression was neuroblastoma with a very unusual history, so exploration of the pathologic process was done on June 30.

Operation and Result.—At the operation a paramedian incision was made and a large mass found completely filling the right upper quadrant. The liver was practically normal in consistency and there was, strange to say, little or no distention of this organ. The tumor mass occupied such a large area that the liver was displaced upward, the stomach was displaced to the left as demonstrated by x-ray examination, and the duodenum was very much deformed. Instead of being displaced as an anatomic organ that could be identified, it was a part of the mass spreading out in such a fashion that its outline could not be recognized. Except for the liver, the anatomy of the upper right quadrant could not be recognized. The mass was hard, either solid or fluid under high tension. After a considerable study there was one point at which fluid could be detected. There was no pulsation, so it seemed safe to aspirate the fluid. This was done and bile withdrawn. At this stage, with the vague picture presented, anastomosis of

the bile-containing structure to the duodenum seemed unsurgical, as it was impossible to see where the duodenum began or ended. Drainage of the gallbladder was decided on as a preliminary step to choledochoduodenostomy. The condition was definitely nonmalignant. While it seemed necessary in this patient, were we confronted with a similar condition again we would make every effort to turn the bile stream into the intestinal tract rather than drain the gallbladder, risking acholic stools. The gallbladder was drained through a counterincision below the costal margin at about the anterior axillary line.

We think we learned why this child was not jaundiced. The common bile duct had not only been dilated but had hypertrophied to such an extent that the fibrous tissue in its wall had been practically replaced by smooth muscle and the contractions were so great that not only had the common duct assumed in part the function of the gallbladder, but the violent contractions of the hypertrophied muscular wall of the duct were sufficiently powerful to push the bile through or by the obstruction at its entrance into the duodenum.

Fortunately, we have not been given the opportunity to learn the nature of this obstruction, but we assumed either that it was due to a tremendous hypertrophy of tissue in the wall of the duodenum simulating in a way that of a pyloric obstruction in a young child or, as has been described frequently in the literature, the tremendous dilatation may have caused an obstruction at the end of the common bile duct by what might be called strangulation rather than obturation. This was confirmed by the postoperative course. The stools became acholic, the reason being that the pressure in the common bile duct had been released by drainage through the gallbladder. When, during her convalescence, the drainage tract became occluded, her pains became intense, jaundice appeared, and small amounts of bile appeared in the stools. By careful manipulation, the drainage tract was reestablished, the jaundice cleared up, and bile again disappeared from the stools.

On August 13, forty-two days after the first operation and in spite of contraindications, it seemed necessary to connect the common bile duct with the duodenum. Operation was extremely simple, quite different from the first operation. The duodenum could be easily outlined. The common duct, while capable of violent contractions, had not diminished its caliber appreciably. It occurred to us, as to others, that a narrowing of the duct by excising a longitudinal strip might help, but this seemed in a way impracticable.

The union of the common duct with the duodenum did not offer the amount of difficulty usually met in such operations occasioned by the inequality of the thickness of the tissues in the two organs. In this patient the musculature of the common duct had hypertrophied to such an extent that it was much thicker than the wall of the duodenum, so that one did not fear leakage around the sutures, as obtains when a fibrous structure is united with a muscular structure. A rather large opening was effected. This might not have been necessary had we been in possession of exact knowledge concerning the nature of the original obstruction.

Postoperative Course.—This was rather stormy, with the usual difficulties frequently encountered in biliary operations. Seven days after the second operation the child's condition became most critical with what appeared to be the picture of a severe pneumonia. Active and energetic treatment was immediately instituted for pneumonia and on the second day definite evidence of left lower pneumonia was seen. The severe course of the pneumonia seemed to be little influenced by the adequate administration of sulfadiazine. This extremely severe pneumonic infection ran a course of ten days and at that time, after the use of two transfusions, oxygen, stimulants and excellent nursing care, the pneumonic consolidation began to show signs of resolution and a resulting fall in temperature, pulse and respiration. There were no complications following the pneumonia after resolution started, and the child was discharged in good condition, except for having lost approximately 20 pounds (9 Kg.). The child was confined to her bed for two weeks at home, during which time her weight gain was rapid and her return of strength most gratifying and permanent.

SUBSEQUENT EXAMINATION AFTER ONE YEAR

From the time of discharge, Sept. 14, 1942, until July 4, 1943 the child's progress and general state of health was perfect. On this day the child complained of general fatigue and mild generalized abdominal pain, and she vomited once. There was no fever, and mild purgation with forcing fluids produced gradual improvement. Examination on July 6, 1943 showed nothing of importance except for a mild icteric discoloration of the sclera. With the realization that something must have happened in the biliary tract to cause this upset condition, associated with jaundice, hospitalization was advised for a check-up.

Hospitalization from July 25 to July 29 showed nothing on physical examination of note except for a faint suggestion of yellow discoloration of the sclera; however, some very important facts were discovered:

1. A flat plate of the abdomen revealed no abnormality in abdomen or pelvis.
2. Cholecystography revealed three or four shadows in the gallbladder region, which suggested stone. No definite gallbladder shadow was shown.

Laboratory examinations revealed normal urine, blood count and picture normal, blood sugar 82 mg., blood urea 17 mg., blood urea nitrogen 8 mg., van den Bergh direct reaction negative, indirect positive, bilirubin 1.0, icterus index 11.

From the foregoing it is evident that the child has, unfortunately, developed biliary calculi which will certainly affect the prognosis, as the presence of these stones, in our opinion, caused a damming back of the bile and was thus responsible for the upset on July 4, 1943 and the subsequent jaundice.

SUMMARY

The diagnosis should be suggested by the following: (a) The patient was a girl. (b) A tumor mass was present in the upper right hypochondriac region. (c) The tumor mass varied in size and consistency. (d) The pain was colicky in character. (e) The stomach and duodenum, on x-ray examination, were shown to be displaced to the left more than one would expect from a solid tumor in the right upper quadrant. (f) The child was healthy and happy when not in pain.

Jaundice is a valuable aid in diagnosis when present.

Cholecystography and biliary studies of the blood would be of invaluable aid when such a condition is suspected.

Choledochoduodenostomy seems to be the operation of choice, while cholecystoduodenostomy is the procedure of second choice.

Operative procedure is absolutely necessary, for no reports have been found where recovery took place spontaneously.

Rarely is it possible to elicit the actual etiology of the condition.

1227 North Calvert Street—2937 North Charles Street.

Broad Humanism of Medicine.—The contrast between the broad humanism of medicine and "the inhumanity of man to man" in many other social relations is most striking in times of war or preparation for war when the ethics of conflict justifies the wholesale slaughter of enemies and the saving and protection of friends only. This great contrast was nobly stated by Louis Pasteur, whom the French people have voted the greatest of Frenchmen, greater even than Napoleon, and of whom Sir William Osler, once professor of medicine in this university [University of Pennsylvania] said "He was the most perfect man who ever entered the kingdom of science."—Conklin, Edwin G: "The Doctor's Dilemma" of Medical Ethics in Peace and War, *Science* 99: 187 (March 10) 1944.

INTRAUTERINE PASTES

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Twelve years ago a series of articles¹ appeared in the European literature with respect to the dangerous effects of soft soap pastes when introduced into the uterine cavity for the purpose of terminating pregnancy. Several of these products have been available to physicians since 1930. The ingredient common to practically all of these is soft soap. Some contain small quantities of iodine as potassium iodide and traces of various aromatic tinctures such as benzoin, myrrh or thymol in addition to the soap.

Several editorial items have appeared in *THE JOURNAL*² with respect to the deaths and injuries reported in Europe from the use of these products. I have had occasion to review in connection with the development of actions under the Federal Food Drug and Cosmetic Act a number of abortion fatalities and injuries in which these pastes have reportedly been used. Similar cases have not been previously reported as occurring in the United States. Manifestations noted may be grouped into several distinct classifications:

I. Systemic effects:

- A. Hemolysis, general and severe, resulting in death or mild, resulting in hemolytic jaundice.
- B. Pulmonary embolism, sometimes fatal.
- C. Generalized septicemia, with fatal results, or with recovery but with local residua.

II. Local effects:

- A. Inflammation and its sequelae such as sterility due to tubal occlusion, peritonitis, and necrosis of uterine wall.
- B. Bleeding as either severe acute hemorrhage or prolonged continued bleeding.

From the Food and Drug Administration, Federal Security Agency. This study was carried out under the guidance and encouragement of Dr. Robert P. Herwick, chief, Drug Division, Food and Drug Administration. The cases were made available for study through the active cooperation of the State Boards of Medical Examiners, physicians and hospitals throughout the country. The animal experimental work referred to was performed by Dr. Ernest Grafenberg of New York and Professor John L. McKelvey of the University of Minnesota at the request of the Food and Drug Administration. Dr. Walter T. Danneuthner, Dr. Jennings Litzenger, Dr. Paul Titus and other members of the American Board of Obstetrics and Gynecology cooperated in the technical preparation for the trials mentioned in this paper. Dr. Anton J. Carlson provided helpful consultation in connection with interpreting the physiologic phenomena reported. The original reports on hemolysis were from the laboratories of Dr. Frank L. Kozelka at the University of Wisconsin. Dr. Gordon A. Grainger and Dr. Norman DeNosso of the Food and Drug Administration staff actively cooperated in the investigations of injuries and deaths reported.

1. Rabau, E.: Dangers and Advantages of Abortifacient Pastes; Review of Literature, *Therap. d. Gegenw.* 73:461-462 (March 31) 1932. Sachs, E.: Dangers and Advantages of Use of Salves, *Ztschr. f. Geburtsh. u. Gynäk.* 102:433-468, 1932. Margraf, C.: Death Caused by Interruptin Injection: Case, *Fortschr. d. Therap.* 8:560-565 (Sept. 25) 1932. Franken, H.: Death of Tuberculous Patient Following Use of Interruptin: Case, *Zentralbl. f. Gynäk.* 56:1282-1289 (May 21) 1932. Nieslony, F.: Fatal Result of Use of Interruptin as Abortifacient: Case, *ibid.* 56:2193-2194 (Sept. 3) 1932. Fingerland, A.: Lethal Pulmonary Embolism Caused by Interruptin Paste Used for Artificial Abortion, *Casop. lek.* 71:935-939 (July 22) 1932. Sellheim, H.: Advantages and Dangers of Use of Salves and Pastes, *München. med. Wchnschr.* 79:335-339 (Feb. 26) 1932. Wagner, G. A.: Complications Caused by Use of Interruptin, *Monatschr. f. Geburtsh. u. Gynäk.* 90:445-446 (March) 1932. von Marenholtz: Dangers of Ointments, *Aerzt. Sachverst. Ztg.* 38:85-90 (April 1) 1932. Engelmann, F.: Dangers of So-Called Nonsurgical Abortion with Interruptin, *Deutsche med. Wchnschr.* 58:166-169 (Jan. 29) 1932; Dangers of Using Interruptin, *Zentralbl. f. Gynäk.* 56:119-122 (Jan. 9) 1932. Müller-Hess and Hallermann, W.: Induction of Abortion by Salvelike Substances to Be Considered Malpractice, *Med. Welt* 6:373-375 (March 12) 1932. Abel, K.: Relation of Method and Means in Production of Abortion: Comparative Study of Composition, Action and Dangers of Interruptin, *Antigravid and Provoc.*, *Deutsche med. Wchnschr.* 58:620-623 (April 15) 1932. Otto, E.: Unsatisfactory Results of Use of Interruptin, *Zentralbl. f. Gynäk.* 56:112-118 (Jan. 9) 1932. Walther: Use of Provocool and Other Ointments, *Med. Klin.* 28:582-583 (April 22) 1932. Haselhorst, A. Brack.

2. Abortifacient Pastes, editorial, *J. A. M. A.* 98:2155 (June 11) 1932. Interruptin, *ibid.* 105:1210 (Oct. 12) 1935. Abortifacients and Leubach's Paste, *ibid.* 111:535 (Aug. 6) 1938. Abortifacient Pastes, *ibid.* 115:221 (June 20) 1940.

The systemic effects as mentioned are evident in the following:

Mrs. K., aged 26, mother of 2 children, two months pregnant and in good health, visited a physician, who introduced 5 cc. of paste slowly through a metal cannula which had previously been inserted to reach just within the internal os uteri. This occurred at 11 a. m. Shortly thereafter while reclining on a couch in his office she became cyanotic and weak and required help to reach her car. She collapsed within a few hours and died at 5 p. m. that day after raising considerable bloody sputum. Postmortem examination performed that evening revealed that the blood had completely hemolyzed. Some of the paste itself was found at the site of placental attachment, between the placenta and the uterine wall, the placenta being partially detached.

A specimen of blood was examined for potassium content. The potassium value for the fluid blood was found to be 287 mg. per hundred cubic centimeters of blood. Since the blood had been completely hemolyzed, this potassium value may be considered equivalent to a similar serum potassium level and as incompatible with life. A careful chemical analysis of several organs revealed no indication of poisoning from any other source. Death may also have been due to the extreme anoxemia concurrent with total destruction of the red cells.

The fluid condition of blood in patients injected with soap as an abortifacient has been noted by others.³ Experimentally it has been found that this paste is capable of causing blood destruction when injected intravenously in rabbits.³

Mrs. I., aged 19, a nullipara, two months pregnant, visited an osteopathic physician, who introduced 10 cc. of a soft soap paste into her uterus through a cannula according to the previously described technic. This was at 10 a. m. At 11 o'clock she walked with the aid of another woman to a hotel one city block from the place where the abortion had been performed. She began to cough sporadically shortly after going to bed in this hotel. She became cyanotic and weak, raised considerable bloody sputum and was seen by a neighborhood physician, who was called in shortly after 1 p. m. He made a diagnosis of embolic pneumonia and sent her immediately by ambulance to a hospital a mile away. Shortly after arrival at the hospital she died. Postmortem examination revealed multiple petechial hemorrhages in the lungs and thrombosis of pelvic vessels. There was some cloudy swelling of the kidneys.

Mrs. K., aged 36, mother of one child, presented herself to her family physician with an incomplete abortion. She had been healthy prior to the occurrence of this abortion, which had apparently occurred spontaneously. Her physician introduced 5 cc. of a soft soap paste slowly into her uterus according to the technic already mentioned. The patient complained of some pain during the injection. While still on the doctor's table she became cyanotic and dyspneic. She was rushed immediately by ambulance to a hospital and placed on oxygen therapy. A chest film taken at that time as well as subsequent films indicated pneumonia of embolic origin. After thirty days in the hospital the patient was released as convalescing. She subsequently recovered.

Multiple microemboli from the use of these pastes have been described in the German literature⁴ in fatal cases.

Severe infection which occurred as a sequel to the introduction of paste into the uterus resulted in death in the case of Miss G., a schoolteacher aged 20, a nullipara, pregnant three months. The patient was injected as described in the other cases mentioned. She suffered no immediate ill effect but went to a rest home in the same locality, where after several days of moderate flowing twin fetuses were passed. At this time she began to develop a fever and was sent to her home approximately 100 miles away. While there she was hospital-

3. Haselhorst, G.: Warning Against Use of Interruptin, *Zentralbl. f. Gynäk.* 56:1050-1057 (April 25) 1932.

4. Brack, E.: Fatal Effects of Interruptin, *Zentralbl. f. Gynäk.* 56:122-124 (Jan. 9) 1932.

ized. After a stormy course during which she received repeated blood transfusions and had a daily temperature range to 105 F. she died one month after the injection of the paste. Postmortem examination revealed multiple abscesses in the pelvis, necrosis of the entire posterior portion of the uterine wall and generalized bacteremic phenomena throughout the body. It was the opinion of the attending pathologist and the attending physician that the picture seen here was one of infection caused by the introduction of a foreign body into the uterus which possessed irritating properties and that if a chemical action was demonstrated experimentally this action, which chemically causes necrosis, would enhance the severity of the infection produced in this case.

The introduction of 3 cc. of one of these pastes into the uterine cavity of dogs produced necrosis of the uterine wall within three weeks in 2 animals of a total of 4 injected by a competent surgeon.⁵

Mrs. U., aged 26, mother of one child, two months pregnant, had previously suffered a preeclamptic toxemia with her first pregnancy. She had suffered from nephritis since the age of 10 years. Paste was used to terminate pregnancy as outlined. A few days after the injection of the paste she passed the fetus and then developed fever and considerable pelvic pain. She was hospitalized with a diagnosis of septicemia, pronounced anemia and a pelvic adnexal mass. After a stormy hospital stay of thirty days, during which time she was given five blood transfusions, she recovered sufficiently to go home. The pelvic mass was still present at the time of her discharge from the hospital.

The sterility which follows the use of paste has been demonstrated to be due to the chemical action of the paste, according to the work of D'Amour and Kiven.⁶ These findings have been confirmed in animals by independent investigators.⁵

Mrs. Q, aged 25, mother of one child, had a toxemic pregnancy and soon became pregnant again three months post partum. Following the injection of 8 cc. of one of these soap pastes in the manner described she aborted satisfactorily and did not develop immediate sequelae. She was seen regularly by her physician in connection with the care of her children and was known to be in good health during the ensuing year. One year after the abortion she complained to her doctor that she could no longer become pregnant. A test for the patency of the tubes showed them to be completely occluded on both sides. Although happily married, she has not conceived during the seven years which have elapsed since the injection of the paste.

Mrs. Y, aged 27, two months pregnant, had 5 cc. of a soap paste injected by a chiropractor. She flowed for four days. Six months later she developed appendicitis. At appendectomy the tubes on both sides were found to be completely atrophic and bound down by adhesions.

Peritonitis follows the introduction of soap into the peritoneal cavity of experimental animals.⁷ In some instances the soap evidently escapes into the peritoneal cavity in women who have had paste injected.

Mrs. V, aged 26, mother of one child, had an abortion performed by an osteopath. She was in good health at the time. The first injection did not cause abortion. A second injection made five days later resulted in the patient passing the embryo in seventy-five hours. She continued to flow for three weeks, developed fever, complained of pelvic pain and was finally hospitalized with a severe peritonitis about two and one-half weeks after the second injection of paste. After several blood transfusions, considerable sulfonamide therapy and conservative

care she recovered but continued to complain of a pain in her side. One year later a unilateral salpingo-oophorectomy was performed. The tube on the affected side was completely bound down with adhesions and the entire adnexa on one side were a mass of typical inflammatory adhesions. It is the opinion of the physician who attended the patient throughout her course that some of the paste leaked through the tubes.

Acute hemorrhage occurred in the case of Miss P., aged 22, pregnant for the first time. She was injected with 10 cc. of a soft soap paste. The first injection did not terminate the pregnancy, and a second injection was performed six days later. Abortion followed after twelve hours, at which time the patient flowed severely. She continued to flow heavily for thirty-six hours. A physician called in at that time found her bathed in a pool of blood and practically exsanguinated. The patient was considered to be at the point of death and supportive therapy was given. Removal of the products of conception was performed four days after the acute episode. The patient recovered.

Prolonged bleeding was the most common finding following the use of this paste. A patient two to four months pregnant would continue to flow for three to six weeks after the passage of the products of conception. An explanation of this phenomenon may be that a mechanical method of interrupting pregnancy permits the release of thromboplastic substances, while chemical irritation of tissue does not permit such a release.

Two instances in which perforation followed the use of the paste, with infection and subsequent death, as well as 2 instances in which there were urticarial responses are mentioned here to point out that the dangers common to other methods of producing abortion are not lacking when pastes are used.

COMMENT

In addition to these consequences from the use of soap pastes, physicians who have used such products as abortifacients have informed me that 50 per cent of the patients on whom it is used find it ineffective. An explanation of this has been offered in view of the probable mode of action of the soap products. It has been suggested that paste acts to cause abortion by killing the fetus. If this is true it would explain why a considerable time might elapse before the fetus is passed. Another explanation which has been offered is that the pastes are not retained within the uterine cavity in many instances but are expelled shortly after application and therefore are ineffective because not retained. These pastes have been offered commercially for the treatment of various disorders of the female genital tract. Where they have been tried, it has been stated that they have been ineffective.⁸

Studies made by Leunbach⁸ indicate that these pastes are capable of covering the entire surface area of the interior of the uterus. It is possible to assume that if the tubular ostia are open the paste will escape through them. Postmortem findings in the cases reported here have indicated in several instances that the paste was actually capable of penetrating into the muscular wall of the uterus beneath the endometrium. There is also evidence that the paste seeps between the partially detached placenta and the uterine sinuses thus entering the blood stream. This has been reported in the German literature and occurred in 1 of our cases.

The use of pastes involves every danger which is inherent in a surgical invasion of the uterine cavity plus the added risks of introduction of a foreign body which

5. Personal communication to the author.

6. D'Amour, F. E., and Kiven, N.: Harmful Effects of Certain Chemical Substances on the Uterus of the Rat, *Am. J. Obst. & Gynec.* 29: 503 (April) 1935.

7. Janson and Leunbach, J. H.: Danger of Provocol, *Med. Welt* 6: 196-197 (Feb. 6) 1932. Personal communication.⁵ Haselhorst.³

8. Leunbach, H. S.: A New Form of Intrauterine Therapy with Introduction of Antiseptic Paste in the Uterus, *Monatschr. f. Geburtsh. u. Gynäk.* 87: 509-520 (April) 1931.

is lost to the control of the operator when once introduced. Its apparent ease of application renders it liable for use in the hands of the inept and in the hands of practitioners who would not attempt abortion by other means. The danger of a chemical irritant which can spread beyond the point where it is introduced and throughout the uterine cavity, perhaps pass out through the tubes into the peritoneal cavity or enter the blood stream, initiating the phenomena described, should not go unheeded. Appropriate steps have been taken to control this situation by the institution and successful completion of legal actions directed at the manufacturers of these products under the Federal Food, Drug and Cosmetic Act.⁹

SUMMARY

1. The effects of soft soap pastes introduced into a pregnant uterus may be fatal or result in serious injury.

2. Case reports in which such results were suffered are grouped under the headings of hemolysis, pulmonary embolism, septicemia, inflammatory sequelae including sterility and peritonitis, and hemorrhage.

Clinical Notes, Suggestions and New Instruments

PREOPERATIVE USE OF TESTOSTERONE PROPIONATE AS AN AID TO SURGICAL TREATMENT OF ENDOMETRIOSIS

JAMES RAGLAN MILLER, M.D., HARTFORD, CONN.

In 1940 Wilson¹ reported the use of testosterone propionate in the treatment of endometriosis of the rectovaginal septum. His patient was 28 years of age and had one child. In a period of thirteen months 4,800 mg. of testosterone was given and he noted (a) suppression of the periods for one year, (b) pronounced but incomplete reduction of the tumor and complete freedom from pain, (c) atrophy of the uterine mucosa, (d) persistent hoarseness, (e) progressive hirsutism and (f) enlargement of the clitoris. After discontinuing the treatment he noted regression of the masculinizing effects and a renewal of tumor growth with recurrence of pain. He did not give the subsequent history.

In 1941 Geist and Salmon² reported results from the use of testosterone propionate in 400 cases of functional bleeding and mentioned the rationale of its use in early endometriosis.

In 1943 Hirst³ reported the use of testosterone propionate in the treatment of 2 cases of advanced endometriosis. He obtained reduction in swelling and relief of pain and suggested this form of treatment when radical excision is contraindicated or refused. He also suggested that progesterone might have a similar effect without causing the undesirable masculinizing effects.

In the case to be reported testosterone propionate was used for the purpose of reducing the size of an endometrial tumor which protruded into the rectal wall, thereby facilitating its subsequent removal by surgery.

The patient, a Polish woman aged 25, had been married for eight years and had never been pregnant. For the past three years she had been trying without effect to become pregnant. She sought relief from menstrual cramps and bloody

diarrhea at the time of the periods. The cramps began after she started to flow. The day before the period, her bowels became at first semisolid and then with the bowel movement there was a discharge of mucus and blood and finally a diarrhea occurred which lasted as long as she was menstruating. Between the periods she felt well. On Aug. 16, 1943, the date of her first examination, which was just one day before the onset of her period, her bowels had already moved three times.

(On the history alone there is an irresistible impulse to make a diagnosis of endometriosis involving the wall of the rectum.)

She stated that symptoms had been increasing in intensity for the past six or seven months. With the exception of pleurisy eight years before of short duration just after marriage, she had been well until the onset of her present illness. A recent x-ray examination of the chest prior to employment in a munition factory showed no tuberculosis. The appendix had been removed eleven years previously. The last period was on July 22. Her periods were regular at about twenty-nine day intervals, lasting four or five days. The breasts reacted moderately. Examination showed a normal marital lower genital tract. The cervix was normal in size but limited in motion, and behind it in the posterior fornix there was a small cherry red polypoid mass which resembled a bit of granulation tissue at the point of a sinus tract following puncture for pelvic abscess. This tissue was immediately taken for biopsy without difficulty and without bleeding. The cervix itself was limited in motion, and behind it there was a nodular mass about half the size of the uterus itself which bulged into the rectal wall. With a finger in the rectum I felt no rough surface and the mucosa seemed everywhere intact. I did not detect any enlargement of the adnexa.

In the knee-chest position examination with the proctoscope showed no rectal bleeding, and the tip of the instrument could not be passed beyond the level of the cervix.

Since I was convinced that the lesion was due to endometriosis, I placed the patient immediately on 25 mg. of testosterone propionate in oil, given intramuscularly twice a week (to be given by the factory nurse), planning to keep her under this treatment to procure shrinkage of the tumor and possibly at a later date to remove the tumor and preserve the reproductive function, if that proved to be possible.

The biopsy showed endometriosis with glands lined by epithelium in the secretory phase. The stromal cells were swollen and showed a decidual-like reaction.

On September 13 the patient reported that she had had a period on the day after her first visit. This did not differ in any way from the previous period. She was due to have a period in about two days. She had had nine injections in all. She noticed that the breasts had not swollen before this period as they usually do. There had been no change in libido. Inspection of the external genitalia gave one the impression that there was some hypertrophy of the tissues around the clitoris but not of the clitoris itself. The cervix was more freely movable and the mass about half the size it was one month previously.

On October 11 she reported that her period came on September 18 to 22 without cramps and without diarrhea. Examination at this time showed a slightly puckered area in the posterior fornix where the biopsy was taken. The rectovaginal examination showed that the mass behind the cervix was a little smaller and the bowel wall over it was movable. Examination led me to believe that in another month I would be able to pass the proctoscope and examine higher in the rectum. I estimated the mass as one-third the size it was when I originally saw her. The clitoris itself was not enlarged, but the labia minora about it appeared to be hypertrophied.

On November 12 the menstrual period was reported to have lasted from November 5 to 8, two weeks late. She had now received twenty-four doses of testosterone of 25 mg. each. At this last period, however, she had a little diarrhea, but less than formerly. The mass was still present behind the uterus. I was unable to pass the proctoscope beyond the level of the cervix. She had no pain with this last period.

9. Interstate Shipment of Abortifacient Paste Enjoined, Medical News (Minnesota), J. A. M. A. 121:775 (March 6) 1943. Notices of Judgment Under the Federal Food, Drug and Cosmetic Act, Drugs & Devices, numbers 607, 608 and 657, February 1943, pp. 320-322 and 348; September 1943, numbers 751-753, p. 1; December 1943, number 802, p. 2.

1. Wilson, L.: Endocrinology 27:29, 1940.

2. Geist, S. H., and Salmon, U. J.: Androgen Therapy in Gynecology, J. A. M. A. 117:2207 (Dec. 27) 1941.

3. Hirst, J. C.: Am. J. Obst. & Gynec. 46:97, 1943

Since regression appeared to have come to a standstill the patient was prepared for radical surgery, and 1 Gm. of succinyl sulfathiazole was given three times daily for the five days prior to her operation, which took place on November 18.

With the patient under spinal anesthesia the vagina was carefully prepared as for a total hysterectomy. The lower midline scar was excised. Adhesions about the sigmoid were separated. The left tube and ovary appeared normal. The right ovary was the size of a hen's egg and converted into a chocolate cyst. A few spots of endometriosis were noted in the anterior cul-de-sac. The uterus was anteverted, fixed by induration at the level of the cervix. The rectal wall was densely adherent, completely obliterating the posterior cul-de-sac. The right adnexa were removed. It seemed impossible to resect the endometriomas and preserve the reproductive functions, so the uterus was removed entirely. This was done, however, by first removing the fundus, with careful preparation of the right ureter under vision. The cervix was then removed below the mass, and the vagina was closed by sutures. The rectal mass with the cervix was then separated from the posterior wall of the vagina and from the uterosacral ligaments on each side. The rectum was then entered and the tumor excised with as little loss of mucous membrane as possible. At the time of operation the mass protruded into the lumen of the rectum and measured 2.5 by 3 by 4 cm. The rectal mucosa was then sutured longitudinally with number 00 chromic catgut, the second suture inverting the first. The preparation of the large bowel which had been carried out was very satisfactory, and no fecal matter or secretion was encountered during the entire operation. Before the abdominal wound was closed without drainage, 5 Gm. of sulfanilamide crystals was sprinkled in the operative area.

The patient made an excellent recovery with but little elevation of temperature and almost complete absence of gas pains. The bowels moved spontaneously without any intervention on the eighth day, except that liquid petrolatum by mouth was started on the fifth day. She left the hospital on the eleventh day, the wound closed by first intention and otherwise in excellent condition. The pathologic examination revealed that the uterus measured 4 cm. in greatest diameter and was symmetrical. The endometrium was mucoid and pink in appearance. The tube showed normal structure. The ovary measured 4.5 cm. in diameter and contained a typical chocolate cyst 3 cm. in diameter. The cyst had a granular brown lining. The cervix measured 3.5 cm. in diameter. The cervical os was regular. The membrane appeared intact. A segment from the rectum was a cylindric mass measuring 3 by 3 cm. Over three fourths of the surface was covered by shiny mucosa. On cross section the muscularis was 0.5 cm. in thickness, and surrounding this on the external surface was a thick layer of fibrous tissue which measured 1 cm. On multiple cross sections, a few cystic zones measuring 2 mm. in diameter and containing brown material were seen in the muscularis.

A section of the rectal wall showed the lining epithelium intact. The muscularis was much thickened, and scattered throughout the wall both from the serosal surface and extending into the mucosa were numerous foci of endometriosis. These consisted of glands lined with columnar epithelium surrounded by a cellular stroma. There was a rather pronounced fibrosis of the muscularis associated with foci of endometriosis. Section of the ovary showed a hemorrhagic cyst. The wall was in part lined by dense fibrous tissue in which there were deposits of blood pigment. The uterus was lined with endometrium in a proliferative phase. The cervix showed scarring with 2 plus chronic inflammatory infiltration. Squamous epithelium showed keratinization.

The pathologic diagnosis was endometriosis of the rectal wall, endometriosis of the ovary with chocolate cyst and chronic cervicitis.

Follow-up examination on Jan. 10, 1944 disclosed the abdomen well healed; no sign of hernia and the top of the vagina well healed. The vagina was deep and has been found to be functionally satisfactory. There is a very slight induration at the top of the vagina. The breasts have not reacted.

COMMENT

The present case report illustrates the use of testosterone propionate in diminishing the activity and decreasing the size of the lesions in endometriosis so that radical surgery can be performed with less danger.

It is suggested that this method may be employed without adverse masculinizing effects over a period of three or four months, at the end of which time approximately maximum results are obtained and surgery can be undertaken.

179 Allyn Street.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING STATEMENT.
AUSTIN E. SMITH, M.D., Secretary.

ANNUAL MEETING OF THE COUNCIL ON PHARMACY AND CHEMISTRY

The Council on Pharmacy and Chemistry of the American Medical Association convened at the Association headquarters, Oct. 9, 1943. Those in attendance were Drs. David P. Barr, J. Howard Brown, S. W. Clausen, H. N. Cole, Morris Fishbein, E. M. K. Geiling, Robert P. Herwick, James P. Leake, Chester Scott Keefer, Stuart Mudd, E. M. Nelson, W. W. Palmer, Elmer L. Sevringhaus, Torald Sollmann and Austin Smith. In addition to members of the headquarters staff there were present Dr. E. E. Irons, Secretary of the American Medical Association Board of Trustees, Dr. Frank Krusen, member of the Council on Physical Therapy and Committee on American Health Resorts, Dr. Milton Veldee, director, Biologics Division, National Institute of Health, and Dr. Donald A. Wallace, secretary of the Council on Dental Therapeutics.

The following is an abstracted report of some of the more important discussions and actions:

Dangers of Multiple Dose Vials for Intravenous, Intramuscular and Intraspinal Injection.—The Council discussed the question of danger from the use of multiple dose containers and appointed a committee to study the possibilities of establishing standards for solutions thus marketed. Meanwhile the Council voted that multiple containers be accepted only when the nature of those preparations and the conditions of their use are such that significant bacterial proliferation could not occur during such use.

Omission of Official Articles.—The Council gave further consideration to the question of omission from New and Nonofficial Remedies of such preparations as appear no longer to require Council acceptance of individual brands. At this meeting it was voted to omit various liver and stomach preparations and digitalis preparations that come within the scope of the U. S. P., with the provision that chapters and general articles for the omitted preparations be retained in New and Nonofficial Remedies for the guidance of physicians and for use by advertising writers and journals which follow the Council in the acceptance of advertising for such preparations. It is pointed out that omission of these articles involves the cessation by the firms concerned of the use of the Council's Seal of Acceptance in connection with the advertising of such products, but that no objection will be raised by the Council to advertising these preparations if the claims follow the limitations outlined in New and Nonofficial Remedies. The Council will give further consideration to omission from New and Nonofficial Remedies of official articles as occasion arises.

Explanation of the Work of the Council.—With the object of placing before the medical profession and others concerned authentic information concerning its ideals and activities, the Council voted to sponsor a series of six or more articles which shall explain the nature of the Council's work, the bearing of its various activities on its goal of rational therapeutics, and the rationale of such Council customs and attitudes as might

not be clear in the absence of adequate explanation. One such article has already appeared in THE JOURNAL (Feb. 12, 1944, pp. 433-439). Other articles of the series will appear as they are prepared and authorized by the Council for publication.

Names of Diseases in Advertising Accompanying Drug Products.—According to the provisions of the Council's Rule 4, the naming of disease conditions in or on the package of a medicinal preparation is to be condemned as being likely to lead to self medication. In view of the fact that preparations for parenteral injection are not likely to lead to self medication, the Council voted to make no objection, unless occasion should arise, to directions accompanying market packages of such products even though they contain directions for disease for which the material may be indicated.

Mineral Oil in Foods.—The Council discussed claims which have been made for the use of mineral oils in foods. From this discussion it became apparent that the Council feels that mineral oil has a legitimate medicinal use but is entirely without nutritional value. Accordingly, the Council voted to regard as unacceptable any labels or advertising which purport to show how mineral oils should be used in foods.

Limitation of Dosage Scales of Accepted Vitamin Preparations.—In view of the confusion and economic waste caused by the multiplicity of dosage forms and sizes of vitamin preparations, the Council voted to limit acceptance of such preparations to the following dosages:

- Riboflavin tablets of 1, 2, 5 and 10 mg. each.
- Riboflavin ampul solutions of 0.2 mg. per cubic centimeter and special consideration to be given to solutions of higher concentrations that may be obtained by the use of other reagents.
- Nicotinic acid tablets of 25, 50 and 100 mg. each.
- No ampul solutions of nicotinic acid to be considered.
- Nicotinamide tablets of 25, 50 and 100 mg. each.
- Nicotinamide ampul solutions of 25, 50 and 100 mg. per cubic centimeter.
- Menadione tablets of 1 and 2 mg. each.
- Menadione capsules of 1 and 2 mg. each.
- Menadione ampul solutions of 1 and 2 mg. per cubic centimeter.

Brands accepted by the Council in the future will be of the foregoing dosage sizes; those which stand accepted for New and Nonofficial Remedies but do not conform will be deleted when their present period of acceptance expires.

It was also voted to consider eligible for acceptance preparations of the following combinations of vitamins A and D:

- Preparations of cod liver oil concentrate having a vitamin A potency of not less than 50,000 and not more than 65,000 units per gram, and a vitamin D potency of not less than 5,000 and not more than 6,500 units per gram.
- Preparations of cod and halibut liver oil having a vitamin A potency of not less than 3,600 and not more than 5,000 units of vitamin A, and not less than 360 and not more than 500 units of vitamin D per gram.

No further action was taken to alter the Council's previous decision to limit acceptance of dosage sizes of thiamine hydrochloride to 0.5, 1, 3, 5 and 10 mg. orally and 1, 5, 10, and 50 mg per cubic centimeter parenterally.

Pertussis Vaccines.—The Council considered the status of current work being done on pertussis vaccines, including the use of such vaccines in combination with others. It is recalled that the Council has previously published status reports on this question. The last one appeared in THE JOURNAL, March 3, 1934, page 692. In view of the present work being done, the Council voted to ask certain investigators to prepare a further status report with a view to determining the acceptability of several submitted brands.

Use of Exact Official Drug Names and Synonyms.—The Council considered the confusion likely to arise even from apparent negligible deviation from exact official terminology. As a result of its discussion the Council voted that in all references to official substances in Council publications the precise official name or synonym be used and that submitted brands of official agents which may be considered by the Council should bear exact official terminology.

Permissible Variations in Labeled Content of Accepted Preparations.—The Council considered a report of the A. M. A. Chemical Laboratory on variations in content from the labeled

claims of a number of preparations which had been examined by the Laboratory. Cognizance was taken of the bearing of the wartime emergency on such variations and their relation to what may be considered good commercial practice. After careful discussion the Council voted that preparations varying beyond 5 per cent plus or minus of labeled content will be accepted only if such variation may be especially justified.

Manufacturers Responsible for Modification of Errors in Manufacture.—When a manufacturer presents for the first time a product for inclusion in New and Nonofficial Remedies, the firm is required to give assurance that it will notify the Council at once on discovery that an error has occurred in the compounding, manufacture or packaging of a Council accepted drug on the market, or on the discovery that a Council accepted drug on the market has been found by a governmental agency, the firm itself or any one else to differ from its standard of identity, strength, quality or purity. It was brought to the attention of the Council that strict observance of this requirement had not always obtained. The Council voted that the Secretary recall to all manufacturers of accepted products their responsibility in this matter. Such a reminder has been sent to all manufacturers of accepted products and they have, without exception, renewed their adherence to this responsibility.

Use of Arsenic and Bismuth Preparations for Oral Injections.—The injection of arsenic and bismuth preparations for treatment of certain infections of the mouth has been the subject of considerable controversy. To present the status of such injection treatment, and possibly to point out the roles which the physician and the dentist may assume in the use of such preparations, the Council authorized the preparation of a status report for the information of those concerned.

Status of Council Rules.—The Council gave consideration to the status of its rules and voted that there was no need for change in the principles. To eliminate any possible confusion in interpretation of the explanatory comments accompanying the Council's rules a committee was appointed to edit the comments in the interest of clarification and greater precision.

The Council adopted a revised outline for presentation of products to provide the manufacturer with further explanations of the data that should be submitted to secure the most satisfactory and expeditious consideration of products.

Diphtheria Toxoid-Tetanus Toxoid Combined Preparations.—Consideration was given to the status of this and other combined biologic preparations. The Council agreed to continue its consideration of various brands which have been submitted and to give further attention to the status of such mixtures as new evidence may arise.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D., Secretary.

TETANUS-GAS GANGRENE ANTITOXIN (See New and Nonofficial Remedies, 1943, p. 522).

The following dosage form has been accepted:

PITMAN-MOORE COMPANY, INDIANAPOLIS

Tetanus-Gas Gangrene Antitoxin (Combined) Pepsin Digestion Refined: Syringe or vial each containing 1,500 units of tetanus antitoxin and 2,000 units each of Clostridium perfringens and Clostridium septicum antitoxins.

SODIUM MORRHUATE (See New and Nonofficial Remedies 1943, p. 310).

The following additional dosage form has been accepted:

G. D. SEARLE & Co., CHICAGO

Ampuls Solution Sodium Morrhuate 5% with Benzyl Alcohol 2%: 60 cc. Each cubic centimeter contains sodium morrhuate 0.05 Gm. and benzyl alcohol 0.02 Gm. in aqueous solution.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 20, 1944

EDUCATION OF RETURNING VETERANS

In November 1942, on signing the Selective Service Act, the President appointed a Committee on Education under the auspices of the Army and Navy to study the problem of education of men and women returning from the war. This committee was called "The Armed Forces Committee on Postwar Educational Opportunities for Service Personnel"; it aimed to make provisions for young people whose education had been interrupted by the war after their discharge from the armed services. Its report to the President was included in a presidential message to the House of Representatives on Oct. 27, 1943. One of the basic recommendations of this committee was:

While the federal government should provide the necessary funds and should have the responsibility of seeing that these are spent providently and under generally accepted standards, the control of the educational processes and the certification of trainees and students should reside in the states and localities.

The following statement also occurred in the committee report:

In considering administrative arrangements for the program it proposes, your committee has had as its primary objective the provision of arrangements which will have the program carried out with an absolute minimum of administrative overhead. . . . The postwar processes of education for ex-service men by the traditional state and local control of education should be fully respected and . . . the federal government should not inject itself into these processes beyond the degree necessary to assure that the funds it make available are providently spent.

The House referred the problem to the Committee on Education, which has been at work on it since December 1943. The outcome of its efforts were incorporated in the Barden bill (H. R. 3846). This bill is the result of extensive hearings including representatives of many educational institutions and national organizations. It incorporates the basic principle referred to, in which full use is provided for existing state agencies with the Veterans Administration acting in a general

coordinating and administrative capacity. In reporting this bill out favorably on May 3, 1944, the Committee on Education stated:

The Committee on Education in considering this bill and recognizing the soundness of the position taken by the President and the Armed Forces Committee on Postwar Educational Opportunities for Service Personnel to preserve the fundamental rights of the citizens of each of our respective states, have framed this legislation so as to avoid a concentration of federal power. This legislation has recognized the legitimate interests of the Veterans Administration in a matter so vital to the veterans. However, it equally recognizes the true interests of the veterans as citizens of our several states and preserves the integrity of their local educational institutions.

The committee concluded after exhaustive study "that matters so vital to the veterans as the decisions as to where and how they should continue their education should likewise be left with the educational agencies experienced in planning such programs, namely the local educational institutions."

In the meantime the Senate has passed the Clark bill (S. 1767), which deals with the problems of the returning veteran in a broad manner and which contains numerous provisions other than the educational ones. The educational provisions incorporated in title 2, chapter 4, call for much more extensive centralization of authority and administration in the Veterans Administration. While the educational aims of the Clark bill, now pending in the House in an amended form with a favorable report of the Committee on World War Veterans Legislation, deserve support, the educational provisions violate the policy which reserves control of education to the states and the localities. This is likely to defeat the ends of this portion of the legislation by providing an inferior type of training to the returning veteran.

The American Council on Education is convinced that the Barden bill should be adopted by the House or, as an alternative, that the educational section of the Clark bill be replaced with the provisions of the Barden bill. Other educational provisions of these bills are essentially the same with regard to the duration of the training, the sums paid the trainees, the eligibility for such training and the right of individual institutions to determine whether or not a trainee is qualified to enter or continue work in that institution.

The Council on Medical Education and Hospitals of the American Medical Association sent the following telegram:

Hon. Sam Rayburn
Speaker, House of Representatives
Washington, D. C.

On behalf of the Council on Medical Education and Hospitals of the American Medical Association we should like to be favored with inclusion of the following in the *Congressional Record*: The Council on Medical Education and Hospitals of the American Medical Association is in agreement with the educational aims of the Clark omnibus bill (S. 1767) but strongly feels that the educational provisions of this bill do not insure the best possible educational returns to the veterans, since it does not provide for full use of state agencies which are capable and

experienced in planning educational programs. The provisions of the Barden bill (H. R. 3846) make extensive use of existing state agencies and would provide a higher type of educational service. We urge that the Barden bill be adopted or that the educational provisions of the Clark bill be amended to include the educational safeguards now existing in the Barden bill. The interest of the Council in medical and premedical education places on us the responsibility for calling your attention to these matters and requesting that the gentlemen of the House give serious consideration to these basic educational principles.

VICTOR JOHNSON, Secretary.

This action is consistent with the point of view of the House of Delegates of the American Medical Association and with the policy of the Association as expressed in its platform regarding local and state control of education and health.

PROPHYLAXIS OF SPOTTED FEVER

The possibility that spotted fever may be prevented by injecting a minute dose of specific immune serum at the sites of presumably infectious tick bites has been suggested by Anigstein and his associates¹ of the Department of Preventive Medicine, University of Texas Medical Branch. Earlier investigators² found that active immunity is developed in monkeys following injection of yellow fever virus into a skin area previously infiltrated with homologous immune serum. Such infiltration allows the safe use of a highly virulent living vaccine, killed or artificially attenuated vaccines being relatively ineffective. It has also been found possible to intercept a local vaccinal virus infection by infiltration of the infected skin area with specific immune serum within a suitable length of time.³

The Texas epidemiologists studied the effects of separate intracutaneous injections of spotted fever virus and homologous antiserum. The serum was prepared by repeated intravenous and subcutaneous inoculations of rabbits with tick vaccine or with egg yolk sac vaccine. In their initial experiments a rectangular skin area of about $\frac{1}{2}$ square inch was delineated with an indelible pencil on the guinea pig abdomen, and measured amounts of the antiserum were injected intracutaneously at each angle of the square. At varying time intervals after this infiltration 0.1 cc. of a demonstrably active suspension of infected guinea pig spleen was injected into the center of the square. With serum doses less than 0.025 cc. spotted fever was not prevented by this technic. With doses varying from 0.05 to 0.1 cc. all febrile reactions were prevented. Nevertheless the animals developed a solid immunity against spotted fever, as shown by reinoculation tests seventeen days later. With still larger doses (0.4 cc.) both infection and postvaccination immunity were prevented.

To develop a feasible prophylactic technic, virus was then injected into unprepared skin areas, followed after varying lengths of time by infiltration of the local skin area with specific immune serum. The inoculum in all tests was 0.1 cc. of a splenic emulsion or of a highly virulent tick emulsion. All febrile reactions were prevented in guinea pigs treated two to eighteen hours later by the local injection of 0.025 cc. of immune serum. The animals, however, did develop immunity to spotted fever, as shown by reinoculation tests one month later. The serum dose was increased to 0.4 cc. in animals in which the therapeutic test was delayed for one to five days after infection. All inoculated animals treated with 0.4 cc. of antiserum on or before the forty-eighth hour remained afebrile and developed an effective specific immunity. By the fifth day, however, the local serum injection was without demonstrable prophylactic effects.

From these data infiltration of local skin areas with specific immune serum at the site of presumably infectious tick bites would seem to be of practical clinical value if such treatment is given within the first forty-eight hours after infection. Such interception of the infection would presumably not prevent the development of specific immunity. Applications to human cases, however, have not yet been reported.

NERVOUS FACTORS IN TRAUMATIC SHOCK

The role of nervous factors in the production and development of traumatic shock is not clearly established. Slome and O'Shaughnessy¹ have reemphasized the importance of the nervous impulses from the traumatic area in determining the production and course of shock by demonstrating, under controlled conditions, that trauma applied to limbs isolated from the body except for nerve connections resulted in irreversible shock. Circulatory collapse could be prevented, or its onset delayed, when the animals were subjected to prolonged spinal anesthesia or when section of the nerves to the limbs had been previously performed. Under these experimental conditions, traumatic shock was believed to have resulted mainly from the discharge of nociceptive nervous impulses from the traumatized area acting by virtue of a neurocirculatory reflex. The local fluid loss that occurs during the traumatization of the limb would be responsible only for the initial depressor effect, the progressive state of shock being elicited by the continuous discharge of nervous impulses from the traumatized area.

However, much experimental work has been marshaled against the concept of nervous factors as the chief cause of traumatic shock. Thus complete section of the spinal cord fails regularly to protect against the development of traumatic shock, although it cer-

1. Anigstein, L.; Bader, M. N.; Young, G., and Neubauer, D.: *J. Immunol.* 48: 69 (Jan.) 1944.

2. Sawyer, W. A.; Kitchen, S. F., and Wray L.: *J. Exper. Med.* 55: 945, 1932.

3. Andrews, C. H.: *J. Path. & Bact.* 31: 671, 1928. Fairbrother, R. W., *ibid.* 35: 35, 1932. Green, R. H., and Parker, R. F.: *J. Immunol.* 45: 171, 1942.

1. O'Shaughnessy, L., and Slome, D.: *Embryology of Traumatic Shock*, *Brit. J. Surg.* 22: 589 (Jan.) 1935. Slome, D., and O'Shaughnessy, L.: *The Nervous Factor in Traumatic Shock*, *ibid.* 25: 601 (April) 1937.

tainly blocks the afferent nociceptive stimuli.² Likewise the interruption of all nerve connections to the traumatized limb does not protect against the onset of shock.³ Finally complete curarization, which performs an effective nerve muscle block by acting on the end plate, did not modify the picture of shock induced by trauma to the limb.⁴ In an attempt to reconcile these two sets of contradictory experiments, Swingle and his group⁵ have undertaken an extensive investigation on the nature of the hypothetical nervous factors in shock and the mechanism by which they influence the onset and development of circulatory collapse. They first confirmed the observation that complete section of the spinal cord or interruption of the major nerves of the limb did not prevent the development of shock following trauma to the limbs. However, thorough infiltration with procaine of the major nerves of the area to be injured protected 10 of 11 animals against shock. A characteristic observation in these animals was that blood pressure tended to return to high levels immediately after the completion of trauma. Apparently then, nerve section and complete cord section, but not nerve anesthesia, removed some nervous elements necessary to maintain the resistance of the animals to shock. A partial section of different areas of the cord was performed to analyze which nervous pathways in the spinal cord are essential for the transmission of impulses from the injured tissues. Chordotomy involving bilateral removal of dorsolateral and dorsal areas did not interrupt the transmission of the nociceptive impulses, and shock occurred on traumatization of the limb. Section of the ventrolateral areas of the cord did prevent the occurrence of traumatic shock in 77 per cent of cases. These areas must be the site of pathways necessary for the transmission of depressor nerve impulses from the traumatic area. When the ventral area of the spinal cord was severed, shock occurred almost regularly after trauma even though the ventrolateral areas had also been interrupted or the nociceptive stimuli had been blocked by local infiltration of the major nerves of the limb with procaine.

These experiments lend support to the view that nervous factors have an important part in the causation and course of traumatic shock. They explain some of the apparently contradictory results obtained in experiments in which peripheral nerves or central pathways have been interrupted without influencing the onset and development of shock. Further; they introduce the new

concept that certain nervous factors may not act to favor the development of shock but, conversely, to increase the resistance against circulatory collapse; their influence is thus much more complex than that which results from harmful nociceptive impulses. Further studies will no doubt provide a better understanding of the mode of action of these different nervous elements.

BILATERAL OOPHORECTOMY WITH RADICAL OPERATION FOR CANCER OF THE BREAST

Horsley¹ states bluntly in a recent contribution that his experience with late results of radical operation for cancer of the breast in young women has been disappointing. Of 9 patients under 36 years of age on whom radical operation was done from Sept. 1, 1922 to Nov. 1, 1937 5, or 55.5 per cent, had recurrence. Of the total cases of radical operation of 148, including these 9 for this same period, there were 75, or 51.02 per cent, recurrences. Since 1937 Horsley has combined bilateral oophorectomy with the radical operation for cancer of the breast in young women. Later he extended this procedure to all patients in the premenopausal stage. From Nov. 1, 1937 to Oct. 1, 1943 he had performed this operation on 25 patients. There have been only two recurrences (8 per cent), one in a patient with bilateral breast cancer who doubtless had internal metastases at the time of operation and the other in a patient with mucoid cancer. The failure of the castration in the case of mucoid cancer is probably due to the fact that the pathogenesis of mucoid cancer of the breast differs from that of the usual mammary carcinoma and that it is not influenced by estrogens, as it probably arises from the stroma. Horsley suggests that the neoplasm should be examined immediately after the radical operation on the breast and before attempting a bilateral oophorectomy, which seems to be efficient in preventing recurrence after a radical operation for the usual type of mammary cancer but will be of no avail in mucoid cancer of the breast. If one excludes from this series the last 6 cases, in which operation has been performed too recently to be of much significance, there remain 19 cases, fourteen months to six years after operation, with only one recurrence, giving an incidence of recurrence of 5.3 per cent. This incidence, when compared with that of 55.5 per cent in the author's earlier and quite comparable group, is significant and is probably more than accident.

The influence of the ovarian function on the development and course of mammary carcinoma has been known for some time. According to Halberstaedter,² Shinzinger recommended bilateral oophorectomy in

2. Freedlander, S. O., and Lenhart, C. H.: Traumatic Shock, *Arch. Surg.* 25: 693 (Oct.) 1932. Parson, E., and Phemister, D. B.: Hemorrhage and "Shock" in Traumatized Limbs: Experimental Study, *Surg., Gynec. & Obst.* 51: 196 (Aug.) 1930.

3. Blalock, A.: The Probable Cause for the Reduction in the Blood Pressure Following Mild Trauma to an Extremity, *Arch. Surg.* 22: 598 (April) 1931.

4. Cicardo, V. H.: Mecanismo del choque traumático experimental, *Semanario med.* 15: 2 (Jan. 6) 1944.

5. Eversole, W. J., and others: The Nervous Factor in Shock Induced by Muscle Trauma in Normal Dogs, *Am. J. Physiol.* 140: 490 (Jan.) 1944. Swingle, W. W., and others: Experimental Analysis of the Nervous Factor in Shock Induced by Muscle Trauma in Normal Dogs, *ibid.* 141: 54 (March) 1944.

1. Horsley, J. Shelton: Bilateral Oophorectomy with Radical Operation for Cancer of the Breast, *Surgery* 15: 590 (April) 1944.

2. Halberstaedter, L.: The Role of Artificial Menopause in the Treatment of Cancer of the Breast, *J. Internat. Coll. Surgeons* 4: 455 (Oct.) 1941.

1889 as an auxiliary measure in the operative treatment of mammary carcinoma because he had observed that the disease runs a more malignant course in young women than in women who have passed the menopause. Beatson, Lett, Torek, Halberstaedter and others reported a few advanced inoperable cases of mammary carcinoma with metastases, in which a definite, even though temporary, improvement followed castration. The work of Huggins on castration for cancer of the prostate offers an analogy. The role of estrogens in the production of mammary carcinoma was successfully demonstrated in animal experiments.

Estrogenic production of mammary carcinoma in mice and in rats by Lacassagne and by Geschickter and Byrnes was commented on in an earlier editorial³ of THE JOURNAL. The recurrences of cancer of the breast after a radical operation are believed to be due to cancer cells that have been left. The small amount that remains would be stimulated by estrogenic substances. It appears logical, therefore, to remove these influences by castration.

Current Comment

CHEMOTHERAPY OF FILARIASIS

Filariasis in naturally infected cotton rats has been treated by Culbertson and Rose¹ of the Department of Bacteriology, Columbia University, with apparent success, using stibamine glucoside. Florida cotton rats are frequently infected with *Litomosoides carinii*, the adult parasites usually being found in the pleural spaces with microfilariae constantly given off into the peripheral blood. Several drugs were tested for their therapeutic effects on this natural infection. Among them stibamine glucoside ("neostam") gave particularly favorable results. This is a relatively nontoxic antimony compound, already used with success in the treatment of kala-azar.² Four doses of from 40 to 60 mg. of this glucoside were administered intramuscularly every week to naturally infected rats, microfilaria tail counts being made daily during the course of the treatment. In a typical case the count was 136 per hundred microscope fields before treating, falling to 52 by the fourteenth day, to 16 by the thirty-fifth day and to zero by the sixty-fourth day. The animal was then killed and over 40 dead adult worms recovered from the pleural cavity. In a control untreated rat similarly infected the initial count remained fairly constant during the sixty-four day period. At necropsy 50 living, freely moving worms were found in the pleural cavity of the control rat. In several cases the peripheral blood became free from microfilariae on or before the twenty-first day. In rats killed before all microfilariae had disappeared from the circulation adult

worms were also found dead and enveloped in pleural exudate, death at times occurring as early as the eleventh day of treatment. From these data, repeated injections of stibamine glucoside apparently resulted in a cure of filariasis in the cotton rat. Napier² showed that the drug is well tolerated by man in comparatively large doses.

TOBACCO CONSUMPTION IN THE UNITED STATES

During 1943 the per capita consumption of tobacco products in the United States reached an all time peak, presumably because of increased consumer purchasing power and other conditions related to the war. However, the total consumption in each year since 1932 has shown an increase over the preceding year. The consumption of cigarets is now at the highest level on record, but the consumption of cigars and chewing tobacco is below that of the previous year. Strangely, the consumption of snuff also increased, but the consumption of smoking tobacco declined. Cigaret consumption during 1943, as estimated by sale of revenue stamps, was over 257 billion, which was an increase of 9 per cent over the 235.8 billion for 1942. The consumption is estimated to be even greater than is indicated by the sale of revenue stamps, because of the large number of tax free cigarets which are shipped to the armed forces outside the United States. The per capita consumption of cigarets in the United States is 1877, which is 59 times the utilization in 1900. No other country has reached a similar level of consumption, but there has been an increase uniformly in all countries. The significance of this consumption of tobacco on the economics and health of the nation demands more consideration than has heretofore been given to it.

CARDIOVASCULAR DISORDERS IN SOUTH PACIFIC AREA

The contributory role of heat, humidity and other environmental factors of the tropics on the development of cardiac disorders in the armed forces has been analyzed recently by Hyman.¹ His study is based on a large series of cases observed in the South Pacific areas. Neurocirculatory asthenia was responsible for the largest number, over one third of all cases. Cardiac neurosis was only one manifestation of the general picture of psychosomatic neurosis characterized by gastrointestinal, central nervous system and psychic abnormalities. Patients with neurocirculatory asthenia were unfit for combat and physical duties but were susceptible of rehabilitation for other services. About one fourth of the cases seen by Hyman exhibited various cardiac arrhythmias, particularly premature beats. As a rule, premature beats had little clinical significance and were not incapacitating. All other irregularities, such as paroxysmal and persistent auricular fibrillation, paroxysmal tachycardia and heart block, were com-

3. Estrogenic Production of Mammary Cancer, editorial J. A. M. A. 119:885 (July 11) 1942.

1. Culbertson, J. I., and Rose, H. M.: Science 99:245 (March 24) 1944.

2. Napier, L. E.: Indian J. M. Res. 16:911, 1929.

1. Hyman, A. S.: Cardiovascular Disease in the Tropics, U. S. Nav. M. Bull. 42:545 (March) 1944.

sidered as serious disabilities, and all patients with any of these were immediately discharged from active military duties. In nearly all cases of this group, underlying cardiac pathologic change could be determined, usually rheumatic or coronary disease. Valvular heart disease was observed in 20 per cent of the cardiac cases. In all of them the condition existed prior to enlistment, and in practically every instance, in addition to a history of rheumatic fever, clinical signs and symptoms of advanced valvular heart disease were present. Deficient physical examination was responsible for the induction of these men into military service. Hyman strongly recommends that medical officers should exert the utmost care in detecting these missed cases. Coronary heart disease was largely a problem of the construction battalion units in connection with the higher age periods in this group. Strenuous physical labor associated with particular climatic factors was an important element in the development of coronary episodes. Prevention of attacks is believed possible, provided the prodromal symptoms of the condition are given sufficient attention. The incidence of hypertension was relatively low—only 6 per cent of all cardiovascular cases. Many of them were found in association with other manifestations of neurocirculatory asthenia. Peripheral vascular disease was also rare and was found more frequently in the older age groups. The exposure to heat and humidity of the tropical areas appears to play an insignificant part in the production and precipitation of cardiovascular disturbances, with the possible exception of neurocirculatory asthenia. Physical and mental stresses and strains of war are certainly much more important factors in this connection.

VENEREAL DISEASE RATES IN THE UNITED STATES

Compilations made by officers of the United States Public Health Service indicate that there was a rise of 11 per cent in newly reported cases of gonorrhea among civilians in the United States in the period from July through December 1943. In that period 158,000 new cases were reported nationally, as compared with 137,000 for the corresponding period in the previous year. In the same period newly reported cases of syphilis decreased 16 per cent, dropping from 290,000 to 245,000. The figures offer basis for comparison, although it is recognized that reporting of venereal diseases in the United States is not complete or adequate. The importance of venereal diseases as a cause of disability is indicated by the fact that 861,000 cases of syphilis and gonorrhea were reported during 1943, which is 70 per cent more than the combined total of cases of diphtheria, malaria, meningitis, pneumonia, poliomyelitis, scarlet fever, smallpox, tuberculosis, typhoid, paratyphoid and typhus. The campaign against venereal diseases has been waged with increasing intensity in recent years. Special attention has been given to the protection of workers in industry, but apparently only a small percentage of industrial plants conduct venereal disease control programs. Not-

withstanding the extensive campaign of education that has been conducted, there are still great numbers of people who attempt to treat themselves for gonorrhea with the sulfonamide drugs. Such drugs have been obtainable over drug store counters particularly in the Southern and Eastern states without a prescription. Sixteen states, however, have enacted legislation safeguarding the sale of sulfonamide drugs, and it would be most desirable that all states enact similar legislation. The information already developed from experiments carried out in the rapid treatment centers and in hospitals where penicillin is available indicates that penicillin may yet prove to be the most effective of all therapeutic agents discovered for the rapid treatment of both gonorrhea and syphilis.

TONSILLECTOMY AND POLIOMYELITIS

In his recent review of reports on the relationship between poliomyelitis and tonsil-adenoid operations, Howard¹ lists no less than 259 cases of poliomyelitis, mostly of the bulbar type, following tonsillectomy up to within sixty days. These cases were reported from various parts of the United States between 1910 and 1943. The patients were children as a rule not more than 12 years of age. The bulbar type of poliomyelitis was most frequent and caused many deaths. Nearly all these cases occurred in the presence of typical epidemics of poliomyelitis. While control observations are not available showing that poliomyelitis, under the circumstances mentioned, occurs more frequently in children after tonsillectomy and adenoidectomy than in children who have not been subjected to such operations, the clinical observations and impressions indicate that these operations may favor poliomyelitic infection. It would seem wise not to remove tonsils and adenoids when poliomyelitis is prevalent.

USE OF THE METRIC SYSTEM

The Council on Pharmacy and Chemistry recently declared¹ that the publications for which it has responsibility will contain statements of weight and measure only in the metric system. For the convenience of those who are not so familiar with this system, conversion tables will be placed in a prominent place in each book. The Council statement attracted widespread attention and much favorable comment. The American pharmaceutical profession adds strong support² by suggesting the deletion of all reference to the apothecaries' system from the official compendiums, the U. S. Pharmacopeia and National Formulary, except for conversion tables during the transition period. This is, of course, logical. If all branches of science and industry adopt the use of the metric system, confusion and misunderstanding will be lessened.

1. Howard, R. E.: Relationship of Poliomyelitis to Tonsillectomy, *Ann. Otol., Rhin. & Laryng.* **53**: 15 (March) 1944.
2. The Metric System, Report of the Council on Pharmacy and Chemistry, J. A. M. A. **123**: 900 (Dec. 4) 1943.
3. Metric Millennium? editorial, J. Am. Pharm. A. (Practical Pharmacy Edition), April 20, 1944.

MEDICINE AND THE WAR

ARMY

SUIT OF ARMOR FOR SILVER WINGED AIRMEN

A suit of armor designed by Brig. Gen. Malcolm C. Grow, Surgeon of the Air Service Command, is now being manufactured in Britain and the United States in large quantities for the silver winged airmen. Two years ago General Grow began experiments in his laboratory. He discovered that low velocity missiles caused 79 per cent of all wounds incurred by fliers in the Eighth Bomber Command and that missiles striking the head, the neck and the thoracic and abdominal regions caused 85 per cent of the fatalities in the command. Calculations showed him that a suit of armor designed to cover these regions could prevent 67.15 per cent of the fatalities resulting from shrapnel and bullet wounds. Collaborating with Leonard Barratt, designer and production manager of the Wilkenson Sword Company, Acton, England, General Grow prepared models from iron and steel alloys cut and arranged in a hundred shapes. He found that squares of highly tempered steel were not so easily punctured as larger plates, and models were prepared with 2 inch squares, which would not splinter and which could stop a 20 mm. shell fragment from an exploding shell only 2 feet from the suit. In all, the armor weighs 22½ pounds without the helmet. General Grow then designed a snug fitting helmet of the same tempered manganese steel but made of curved strips which fit around the head from front to rear. The designer has arranged buckles so that with the pull of a single string the whole gear will drop instantaneously from the flier's body, allowing him complete freedom. American airmen in the European theater of operations have tested the suit of armor in battle, and a few weeks after its issue letters of thanks from pilots, radio operators and turret gunners were received at the Office of the Surgeon General.

U. S. ARMY HOSPITAL SHIP "MARIGOLD"

The United States Army transport *Marigold* (ex *President Fillmore*) was designated as a United States Army hospital ship on February 24 in accordance with international practice, as set forth in the provisions of the Hague Convention X of 1907. In the future the United States Army hospital ship *Marigold* will be operated in accordance with the provisions of applicable treaties. Notification of this designation was delivered, through channels, to the Hungarian and Rumanian governments on March 9, to the Bulgarian and German governments on March 10, to the Japanese government on March 11 and to the Thai government on March 18. The ship's master of this and all other United States military hospital ships will at all times maintain sufficient copies of this general order for presentation to any authorized agent of an enemy belligerent who may require it for inspection.

STRENGTH OF ARMY NURSE CORPS ESTABLISHED AT 50,000

The War Department announced recently that the authorized strength of the Army Nurse Corps has been established at 50,000. An increased number of hospital trains planned for service, added station and general hospitals, and the need for nurses aboard ships were given as reasons for the increase. The authorized strength of 50,000 is a ceiling, the War Department said, and actual appointment of nurses will be determined by the needs of the Army in relation to casualties and by the rate of civilian nurses declared available by the Procurement and Assignment Service of the War Manpower Commission. The War Department added that nurses must undergo a period

of training for their duty with the Army, and therefore future requirements must be anticipated. At the same time Major Gen. Norman T. Kirk, Surgeon General, U. S. Army, paid tribute to the Army Nurse Corps, noting that much of the excellent record made in this war by the Medical Department was due to the work of army nurses.

DISTRIBUTING CENTER FOR PARASITOLOGIC SPECIMENS

The Division of Parasitology of the Army Medical School, which serves as a distributing center for parasitologic specimens, received approximately 55,000 items from Jan. 1 to Dec. 31, 1943. These have been graded, vialled and reconditioned, and 52,110 have been redistributed to medical and graduate schools, public health laboratories or the military.

TABLE 1.—Amounts and Percentages of Different Items Received and Distributed from Jan. 1 to Dec. 31, 1943

Incoming		Item	Outgoing	
Number	Per Cent of Total		Number	Per Cent of Total
780	1.4	Protozoan cultures.....	780	1.5
1,001	2.0	Entomologic specimens (vials averaging 75 to 100)	1,368*	2.6
3,329	6.0	Preserved stools (cysts and ova) (vials averaging 10 cc.)	3,153	6.1
59,775	72.2	Malaria slides.....	55,926	68.5
10,122	18.4	Miscellaneous items (including helminthologic specimens)	11,111*	21.3
55,007	100.0		52,110	100.0

* Remainder of material supplied by Army Medical School.

TABLE 2.—Materials Received and Shipped to Various Agencies from Jan. 1 to Dec. 31, 1943

Agency	Percentage of Material	
	Received From	Sent To
Medical and graduate schools.....	18.6	78.0
Public health laboratories.....	58.5	6.4
Military sources.....	22.7	15.6

The type as well as the number and percentage of type material received and sent out during 1943 is summarized in table 1. These items were received from a number of different agencies. While space does not permit a detailed acknowledgment of the generous cooperation of various agencies, table 2 gives an idea of the groups supplying and using these materials.

Once again it is urged that individuals and groups send in parasitologic material which can be spared to the Director, Army Medical School, Army Medical Center, Washington 12, D. C., attention Division of Parasitology.

OBSERVE MOUNT SINAI HOSPITAL UNIT ANNIVERSARY OVERSEAS

Waldemar Kops, acting president of the Mount Sinai Hospital, New York, cabled congratulations (May 8) to the commanding officer of their hospital unit, in commemoration of the first anniversary of its arrival in North Africa. The Mount Sinai Hospital Unit was organized in 1940 and called to active duty in September 1942, starting its foreign duties in May 1943.

Lieut. Col. Herman Lande is its executive officer, and Major Ruth Chamberlain is chief nurse.

The Mount Sinai unit perpetuates a tradition of military service by the hospital dating from the Civil War. In the first world war medical officers, nurses, enlisted men and civilian employees from the Mount Sinai staff served at Base Hospital No. 3 of the American Expeditionary Forces in Vauclaire, France. In this war more than 700 men and women have left the hospital for service with the armed forces. Three former members of the house staff are reported prisoners of the Japanese. Two men have lost their lives in action.

In addition to the overseas unit, a second Mount Sinai unit for service in the United States was organized in November 1942 and is designated the Affiliated Hospital Unit No. 30. It consists of fifteen members of the staff under the direction of Dr. John H. Garlock and includes surgeons, physicians, laboratory and x-ray specialists, and dentists. This group may be activated to serve as an evacuation hospital in the interior of this country.

TERMINATION OF COMMISSIONS IN MEDICAL ADMINISTRATIVE CORPS

Accepted medical, dental and veterinary students who have elected to retain their appointments in the Medical Administrative Corps, Army of the United States, will be discharged from such appointments for the convenience of the government under the following circumstances:

1. Discontinuance of medical, dental or veterinary education.
2. Matriculation at an unapproved school of medicine, dentistry or veterinary medicine.
3. Failure to complete full course of medical, dental or veterinary instruction.
4. Failure to secure appointment in the Medical Corps, Army of the United States, within one year after completion of the prescribed full course of medical instruction, or failure to secure appointment in the Dental or Veterinary Corps, Army of the United States, within three months after completion of the prescribed full course of instruction. The number selected will depend on requirements within authorized procurement quotas.

APPOINTS FIVE SCIENCE WRITERS AS CIVILIAN CONSULTANTS

Major Gen. Norman T. Kirk, Surgeon General of the Army, has appointed five science writers as civilian consultants. The men, who are also members of a subcommittee of the Division of Medical Sciences of the National Research Council and members of the National Association of Science Writers, are David Dietz, science editor, Scripps-Howard Newspapers, Cleveland; James C. Leary, science editor, *Chicago Daily News*; Robert D. Potter, science editor, *American Weekly*, New York; Lawrence C. Salter, associate director of press relations, American Medical Association, Chicago, and William L. Laurence, science news editor, *New York Times*. These writers will work with the Surgeon General and his staff in the preparation of information for the public on new developments in medical research in the Army.

MAJOR JOHN W. HENDERSON JR. AWARDED SILVER STAR

Major John W. Henderson Jr., formerly of Worcester, Mass., has been awarded the Silver Star for "gallantry in action near Alimena, Sicily, July 22, 1943. Besieging enemy forces had compelled our troops to withdraw. Under cover of darkness and during heavy enemy machine gun and artillery fire, he successfully led a searching party well forward of outpost lines to locate and evacuate casualties. His outstanding courage and coolness under heavy enemy fire merit the highest praise." Dr. Henderson graduated from Harvard Medical School, Boston, in 1935 and entered the service May 20, 1941.

LIEUT. MARY H. MCKINNON NAMED TO CADET NURSE POST

The War Department recently announced the appointment of 1st Lieut. Mary H. McKinnon, Army Nurse Corps, formerly of Los Angeles, as assistant to Major Mary Walker of Toulon, Ill., director of the U. S. Cadet Nurses in army hospitals. Lieutenant McKinnon will assist Major Walker in assigning cadet nurses who have completed their two and a half years of training in civilian hospitals to thirty army general hospitals throughout the country. Lieutenant McKinnon has seventeen years of civilian nursing experience to her credit. She joined the Army Nurse Corps in August 1943. She has also served in the office of the chief nurse at Walter Reed General Hospital, Washington, D. C. A native of Victoria, British Columbia, Canada, she came to this country to attend Teachers College at Columbia University, from which she was graduated with a B.S. degree. After five years of teaching in the Victoria elementary school system she returned to this country and attended the University of California School of Nursing. She was naturalized in 1932 and until she entered the Army Nurse Corps served as an inspector of the schools of nursing for the Board of Examiners in California.

EIGHT ARMY NURSES AWARDED PURPLE HEART

The War Department recently announced the award of the Purple Heart to eight second lieutenants of the Army Nurse Corps for wounds received as a result of enemy action in Italy:

Irene Virginia Barton, Anderson, S. C., wounded Feb. 7, 1944.
Ruth D. Buckley, Elmwood, Wis., wounded in February 1944.
Mary W. Harrison, Belpre, Ohio, wounded in February 1944.
Ruby L. Hoppe, Friedheim, Mo., wounded Feb. 7, 1944.
Helen A. McCullough, Wichita, Kan., wounded March 29, 1944.
Frances Virginia Raymond, Wichita Falls, Texas, wounded March 29, 1944.
Ruth Catherine Sobeck, Cokeville, Pa., wounded in September 1943.
Fern H. Wingerd, Omaha, wounded Feb. 7, 1944.

ARMY PERSONAL

After eighteen months in an Army hospital recovering after the loss of a leg in the New Guinea air raid in 1942, Major Max Goldman, formerly of Boston, was assigned to the AAF's Convalescent Center at Pawling, N. Y., where he will aid in the rehabilitation of sick and wounded fliers returning from combat. Major Gen. David N. W. Grant, the Air Surgeon, who made the assignment, stated: "Thus, it is anticipated, the liability of an artificial leg will be turned into an asset, applying the old adage 'Example is better than precept.'" In addition to the Purple Heart, Dr. Goldman wears a Fifth Air Force unit citation, the American Defense Service ribbon and the American, European-African and Asiatic-Pacific theater ribbons, the latter with two combat stars. He graduated from Tufts College Medical School, Boston, in 1936 and entered the service Oct. 15, 1940.

CAPT. LEO SCHNEIDER HELD PRISONER OF WAR

Information has recently been received that Capt. Leo Schneider, formerly of Portland, Ore., is being held a prisoner of the Japanese. Dr. Schneider entered the service in January 1941 and was in the Philippines from September 1941 until the fall of Bataan. He was reported missing in April 1942. Dr. Schneider graduated from the University of Oregon Medical School, Portland, in 1935.

BED PATIENTS IN ARMY DISPENSARIES

Bed patients "cared for in a dispensary will be carried as on a 'quarters' status, and the days lost will be considered as days lost in quarters," according to a recent change in Army Regulations.

MISCELLANEOUS

HOSPITALS NEEDING INTERNS
AND RESIDENTS

At the request of the Procurement and Assignment Service, the Council on Medical Education and Hospitals has been publishing names of hospitals needing interns and residents. Since most medical schools will graduate another class in the late summer or early autumn, hospitals are requested to survey their needs for the next few months and report them to the Council for publication.

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment service:

(Continuation of list in THE JOURNAL, May 13, page 155)

DISTRICT OF COLUMBIA

St. Elizabeths Hospital, Washington. Capacity, 7,471; admissions, 3,457. Dr. Winfred Overholser, Superintendent (4 interns—October 1).

KENTUCKY

Kentucky Baptist Hospital, Louisville. Capacity, 150; admissions, 5,090. Mr. H. L. Dobbs, Superintendent (interns—October 1).

NEW YORK

Bronx Hospital, New York City. Capacity, 389; admissions, 8,075. Mr. William B. Selzer, Superintendent (4 interns—October 1).
Goldwater Memorial Hospital, New York City. Capacity, 1,889; admissions, 1,975. Dr. C. G. Scherf, Superintendent (interns, residents).

PENNSYLVANIA

Pittsburgh Hospital, Pittsburgh. Capacity, 210; admissions, 4,516. Sister M. Rita, R.N., Superintendent (interns—October 1).

VIRGINIA

Stuart Circle Hospital, Richmond. Capacity, 120; admissions, 2,929. Miss Mabel E. Montgomery, R.N., Acting Director (interns—October 1).

WARTIME CONTROL OVER DISTRIBUTION
OF ESSENTIAL NARCOTIC DRUGS

In a recent announcement, Secretary Morgenthau, through the Bureau of Narcotics, extended wartime control over the distribution of essential narcotic drugs down to the corner drugstore by setting up machinery for applying strict quotas to retail dispensers in any locality in which the bureau has evidence of leaks into illegitimate channels. No general application of purchase and sales quotas is contemplated at this time. Quota systems may be established where considered necessary by the Commissioner of Narcotics within a federal internal revenue collection district or in a limited portion of a district, such as a county, city or town. Where such a quota area is designated, retailers guilty of permitting lax handling of prescriptions or of condoning prescription frauds or of failing to protect adequately the drugs entrusted to them may be denied further supplies of opium and coca leaf preparations under the order known as Narcotics Conservation Order No. 2. Criminal penalties for violations of the order also are provided.

H. J. Anslinger, Commissioner of Narcotics, emphasized that present supplies of these drugs, properly distributed, are adequate to meet domestic and military needs. However, because of military requirements of the United Nations it is considered essential that these supplies be safeguarded to the utmost.

INFORMATION CENTERS FOR VETERANS
AND WAR WORKERS

Brig. Gen. Frank T. Hines, administrator of the Retraining and Reemployment Administration of the Office of War Mobilization, announced recently that basic policies have been agreed on by the Retraining and Reemployment Policy Board for the establishment and maintenance of information centers for veterans and war workers in communities throughout the United States.

The policies in general provide that the armed forces will utilize every means to see that veterans are fully informed of their rights before leaving the services; that the principal

government agencies directly involved—the War Manpower Commission, the Selective Service System and the Veterans Administration—will also prepare themselves to provide full assistance, and that these three agencies, in cooperation with local groups, will determine the best means of handling the problem according to the needs of local areas concerned.

Excellent information centers are already functioning in a number of communities, where they have been established through the patriotism and initiative of local leaders, General Hines said. It will be the policy of the Retraining and Reemployment Administration in sponsoring the contemplated information centers to cooperate with those already established, he added.

The administrator has appointed a committee of the policy board to work out the detailed operating application of these general policies, and these will be announced as soon as possible.

PERSONNEL CHANGES IN PROCUREMENT
AND ASSIGNMENT SERVICE

Comdr. Maxwell E. Lapham (MC), U.S.N.R., whose serious illness several months ago forced him to relinquish his duties as executive officer of the Procurement and Assignment Service, has been ordered to active duty at the Naval Hospital, San Diego, Calif. Dr. Lapham rendered distinguished service to the Procurement and Assignment Service and to the professions with which it deals. Dr. Paul C. Barton, acting executive officer in Dr. Lapham's absence, has been appointed executive officer by the directing board. The board also appointed Dr. Deane F. Brooke to the assistant executive officer's position vacated by Dr. Barton. Dr. Barton, the new executive officer, is known to most chairmen. Dr. Brooke before the war was in practice in Barrington, Ill., and has served the Procurement and Assignment Service in a dual capacity for almost two years—as liaison officer for the Public Health Service and as head of the field service section of the Central office.

COMMUNITIES IN NEED OF
PHYSICIANS

The following six communities have applied to the U. S. Public Health Service for federal assistance in obtaining the services of physicians under the recently enacted law authorizing an appropriation of \$200,000 for the relocation of physicians:

Pineville (Mecklenburg County), North Carolina
Star (Montgomery County), North Carolina
Waxhaw (Union County), North Carolina
Glenrock (Converse County), Wyoming
Leola (McPherson County), South Dakota
Faith (Meade County), South Dakota

Physicians interested in locating in these communities should communicate with the Surgeon General, United States Public Health Service, Washington (Bethesda Station), D. C.

NEW DISCOVERIES ANNOUNCED BY SZENT-
GYÖRGYI; ARREST REPORTED

The MTI (in German) of February 16 (Hungary) states that the Biochemical Institute of Szeged University, under the direction of Szent-Györgyi, holder of the Nobel Prize, publishes an account of two important medical discoveries. Laky, a lecturer at the university, has discovered a hitherto unknown property of the blood called plasma chinin, which plays a decisive part in the process of blood coagulation. Since the lack of this material causes hereditary hemophilia, this discovery supplies medical science with the means of curing this complaint. This property will presumably also play an important part in stopping other types of hemorrhages. According to recent Stockholm reports, Szent-Györgyi has been arrested in Budapest for expressing pro-British sentiments.

Straub, another lecturer at the university, has succeeded in analyzing the chemical constituents of uric acid, thereby producing a hitherto unknown type of albumin.

ORGANIZATION SECTION

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—H. J. Res. 271 has passed the House and Senate, appropriating \$6,700,000 for emergency obstetric and pediatric care for the wives and infants of enlisted men in the armed forces in grades four, five, six and seven for the remainder of the present fiscal year.

Bills Introduced.—The Acting Secretary of the Treasury has submitted a draft of proposed legislation to amend the federal narcotic laws so as to bring isonipecaine within their restrictions. S. 1914, introduced, by request, by Senator George, Georgia, proposes to translate into legislation the recommendation of the Acting Secretary of the Treasury. The bill, pending in the Senate Committee on Finance, defines isonipecaine to mean "any substance identified chemically as 1-methyl-4-phenyl-piperidine-4-carboxylic acid ethyl ester, or any salt thereof by whatever trade name designated." S. 1901, introduced by Senator Radcliffe, Maryland, provides that there shall be in the Medical Department of the Army, in addition to such assistants to the Surgeon General as are now authorized by law, an assistant with the rank of brigadier general who shall be an officer

of the Sanitary Corps. S. 1908, introduced by Senator Johnson, Colorado, for Senator Clark, Idaho, proposes to amend the Federal Food, Drug and Cosmetic Act so as to provide that any food, drug, device or cosmetic condemned under section 334 of the act shall, after entry of the decree of condemnation, be disposed of by destruction or sale or, in the case of food which is not injurious to health or otherwise unfit for human consumption, by gift to public or private charitable institutions, as the court may direct. H. R. 4777, introduced by Representative Outland, California, proposes for each fiscal year an appropriation of \$50,000,000 to assist the states to establish and maintain school lunch programs.

STATE MEDICAL LEGISLATION

Louisiana

Bill Introduced.—H. 2, to amend the uniform narcotic drug act, proposes so to define narcotic drugs as to include isonipecaine, which is defined in the bill as "the substance identified chemically as 1-methyl-4-phenyl-piperidine-4-carboxylic acid ethyl ester, or any salt thereof by whatever trade name identified."

MEDICAL ECONOMIC ABSTRACTS

INDEMNITY SURGICAL AND OBSTETRIC PLAN RECOMMENDED

The Economics Committee of Omaha-Douglas (Neb.) Medical Society at a meeting Nov. 19, 1943 unanimously agreed to submit the following recommendations to the society:

1. The establishment of a surgical and obstetric indemnity plan immediately.

2. That such a plan be coordinated with the local Blue Cross Plan under the supervision of a committee of the Omaha-Douglas County Medical Society.

3. Studies are now under way regarding the indemnity schedule, the premium to be charged, the limitations of the contract, and so on. The result of these studies will be acted on at a subsequent meeting of the special committee and promptly reported to the society for proper action.

4. If the medical society approves the establishment of the surgical and obstetric indemnity plan, a mutual assessment company will have to be formed and \$10,000 will have to be deposited with the state insurance commissioner pending the passage of an enabling act by the state legislature.

5. The committee thinks it is advisable to start at this time only the surgical and obstetric indemnity plan. Later, when more experience has been gained and sound actuarial figures are available, some form of a medical indemnity plan could be added.

MINNESOTA AND IOWA PLAN

The Minnesota State Medical Association at its recent meeting in Rochester made preparations to secure legislative action on the enabling act to permit organization of prepaid medical care plans under medical sponsorship. According to the bulletin of the Hennepin County Medical Society (April 1944) the reports of the Committee on Sickness Insurance, Committee on Medical Economics and the Presidential Address to the House of Delegates all recommended such action.

The Iowa State Medical Society at the meeting of the house of delegates approved the principle of prepayment plan for medical care on a nonprofit basis and instructed its legislative committee to prepare the necessary legislation.¹ The House of Delegates provided for a special meeting within four months to consider the report of the legislative committee.

1. J. Iowa State M. Soc. 34:206 (May) 1944.

DENTIST STUDY OF PREPAYMENT PLANS

The American Dental Association has appointed a Prepayment Committee with Leo J. Schoeny of New Orleans as chairman (*J. Am. Dent. A.* 31:302 [Feb. 15] 1944). The committee has the duty of studying prepayment plans and other services to determine their applicability to dental care for certain groups of the population. It has analyzed hospital and medical care prepayment plans for this purpose. It is analyzing various dental plans to attempt to establish the principles which must govern the formation of prepayment plans and dentistry.

It is proposed that a prepayment plan be established on an experimental basis under the supervision of a state or component dental society for groups of not less than 1,000 persons and preferably for groups of 5,000 persons.

It is recognized that an experiment of this character should be guaranteed for a sufficient period to produce the information desired.

The Board of Trustees of the American Dental Association has approved the principles of this experimental program.

OFFICIAL NOTES

DOCTORS AT WAR

Radio broadcasts of Doctors at War by the American Medical Association in cooperation with the National Broadcasting Company and the Medical Department of the United States Army and the United States Navy are on the air each Saturday at 4:30 p. m. Eastern war time (3:30 Central war time, 2:30 Mountain war time and 1:30 Pacific war time).

The titles and guest speakers for the next three programs are as follows:

May 20. "War Nerves."
Speaker, Lieut. Col. Harold C. Lueth, M. C., A. U. S., Surgeon General's Liaison Officer, American Medical Association.

May 27. "Fatal Mistakes."
Speaker, Forest E. Long, M.D., Director, School and College Safety Division, National Safety Council.

June 3. "Medicine in the Front Lines."
Speaker, Major Gen. George F. Lull, M. C., A. U. S., Deputy Surgeon General, Washington, D. C.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARIZONA

State Medical Election.—Dr. Charles P. Austin, Morenci, was chosen president-elect of the Arizona State Medical Association at its annual meeting April 14 and Dr. Dan Mahoney, Tucson, was installed as president. Other officers include Drs. Walter Brazie, Kingman, vice president; Frank J. Milloy, Phoenix, secretary, and Clarence E. Yount, Prescott, treasurer.

CALIFORNIA

Journal Dedicated to Howard Naffziger.—The *Journal of Nervous and Mental Disease* for May has been dedicated to Dr. Howard C. Naffziger, professor of surgery, University of California Medical School, San Francisco, by members of the staff of the school on the occasion of his sixtieth birthday, May 6.

Grant for Use in Physical Therapy.—The National Foundation for Infantile Paralysis announces a two year grant totaling \$34,080 to Stanford University School of Health (women), Stanford University, to strengthen the physical therapy technician school and to prepare syllabuses and text materials for the use of physical therapy instructors and their students.

Latin Americans at University of California.—Sixteen health educators representing twelve Latin American countries are taking a special course being given for them by the new School of Public Health, University of California, Berkeley (THE JOURNAL, May 6, p. 72). The educators are being trained specifically at the request of the coordinator of Inter-American Affairs and represent Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Paraguay and Peru. The course consists of two sixteen week terms and will cover problems of nutrition and personal hygiene, sanitary bacteriology and environmental sanitation, general education and sociology, public health administration and health education (THE JOURNAL, Nov. 6, 1943, p. 645).

CONNECTICUT

Governor Proposes State Medical School.—Serious consideration should be given to adding a medical department to the University of Connecticut, Storrs, Gov. Raymond E. Baldwin stated in his address as principal speaker at the dinner of the recent annual meeting of the Connecticut State Medical Society. He said that the state had the responsibility for the training of physicians to take care of the people of Connecticut and that a school of medicine in the state university should be planned.

Dr. Mooney Named to Newly Created Position.—Grace Mooney, Ph.D., formerly research assistant in the Yale University School of Medicine, New Haven, has been appointed executive assistant to the secretary of the Connecticut State Medical Society. The creation of the position was authorized by the house of delegates at its special meeting in December 1943. Dr. Mooney received her doctor of philosophy degree from the Graduate School of Yale University. She has served as assistant director of the bureau of venereal diseases in the department of health in the city of New Haven, assistant in venereal disease control in the state department of health and as the assistant secretary of the Committee on Social Protection in the Connecticut War Council.

ILLINOIS

Personal.—Dr. Straub W. Shurtz, Champaign, has been given a certificate of membership in the "fifty year club" of the Illinois State Medical Society.—Dr. John P. Walsh, Wheaton, health officer of Du Page County, has been transferred to supervise a five county district health unit with headquarters at Dixon.

Chicago

Fertility Clinic.—The Illinois League of Planned Parenthood has established a clinic at 203 North Wabash Avenue, designed to help childless women to become mothers. Women who are seemingly sterile but who wish to bear children, if possible, will be provided with expert medical advice.

Dr. Alvarez Gives Ranson Lecture.—Dr. Walter C. Alvarez, Rochester, Minn., presented the Ranson Memorial Lecture, April 3, in Thorne Hall under the auspices of Phi Beta Pi Fraternity at Northwestern University. His paper was entitled "Hints on the Diagnosis of Abdominal Pain."

Health Education Director Named for Tuberculosis Institute.—Miss Florence Benell, M.S., who has been teaching hygiene, anatomy, child health and first aid at the Milwaukee State Teachers College, has been appointed director of health education for the Tuberculosis Institute of Chicago and Cook County.

Course in the Rorschach Test.—The department of neuropsychiatry, Michael Reese Hospital, announced its 1944 course in the Rorschach test June 5-9. Emphasis will be placed this year on the test as far as it indicates expectation of success in treatment. The teaching material, as in former years, will consist of Rorschach response records as obtained from patients under observation and treatment. These will be evaluated and interpreted. Clinical group sources will be the neuroses and early or latent schizophrenia.

Reading Room Named for Dr. Elliott at St. Luke's.—St. Luke's Hospital has dedicated a new reading room to Dr. Arthur R. Elliott, senior consultant physician and for many years a member of the staff. The new installation is part of a general program of expansion at the hospital, including the remodeling and removal of the hospital's library from the eighteenth to the third floor. Dr. Elliott was instrumental in obtaining funds to develop the library; \$13,000 of the \$17,000 obtained was used for the library itself; the remainder is to be applied to the ultimate location of the medical record room and an x-ray film museum on the third floor adjacent to the library. Provision has been made for the expansion of the library from its current total of about 9,350 volumes to about 15,000 volumes. Other plans call for new intern quarters on the fourth and fifth floors and additional wartime accommodations for nurses.

IOWA

Hospital News.—The cornerstone of the new Raymond Blank Childrens Memorial Hospital, affiliated with the Iowa Methodist Hospital, Des Moines, was laid at special ceremonies, May 14.

Special Society Election.—Dr. Erma A. Smith, Ames, was chosen president-elect of the State Society of Iowa Medical Women at its annual meeting in Des Moines, April 20. Dr. Helen Johnstone, Des Moines, was installed as president and Dr. Jeannette Jongewaard, Jefferson, was named vice president. Other officers include Drs. Ruth E. Church, Washington, secretary, and Edna K. Sexsmith Harper, Greenfield, treasurer.

Rocky Mountain Spotted Fever.—The Iowa State Department of Health has published a report on Rocky Mountain spotted fever since the first case was reported in Iowa in 1933. For an eleven year period twenty-one deaths in 122 cases have occurred, giving a death rate of 17.2 per cent. Of twenty-one fatalities, ten deaths occurred in patients under 20 and eleven in persons above that age. Seventy-six of the patients were males and 46 females.

MAINE

Druggist Fined for Sulfathiazole Sales.—The first prosecution of its kind by the Food and Drug Administration was said to have occurred in Portland, Maine, recently when a druggist was found to have been selling loose tablets of sulfathiazole in 500 tablet bottles. In 1 case a purchaser to whom he had dispensed 50 tablets for self medication had suffered serious consequences. According to the *New Hampshire Health News* the dealer in question was found guilty and sentenced to pay a fine of \$1,000, the latter suspended on plea of poverty.

MARYLAND

Study of Juvenile Delinquents.—The board of estimates of Baltimore has appropriated funds to establish and maintain two area projects in the city, one of which is to be in an area predominated by Negroes and the other by white persons. It is hoped that the projects will assist in studying the methods of combating juvenile delinquency, predicated on the theory that proper planning and administration will reduce this problem. According to *Baltimore Health News* the special committee on area projects of the mayor's youth commission will be in charge of the program. While the selection of the areas has not yet been announced, it has been urged that each include about 15,000 inhabitants in a section representative of the entire city.

Dr. Riley Chosen Director of Post Mortem Examiners Commission.—Dr. Robert H. Riley, Baltimore, director of the state department of health, has been named chairman of the Maryland Post Mortem Examiners Commission. He succeeds the late Dr. William G. MacCallum, who was head of the commission from the time of its establishment June 1, 1939 until his death, February 3. Dr. Hugh R. Spencer, professor of pathology at the University of Maryland School of Medicine, Baltimore, was selected as vice chairman. The commission is responsible, with Dr. Howard J. Maldeis, Baltimore, chief medical examiner, for all the work formerly performed by the coroners in Baltimore city and the twenty-three counties of Maryland.

MICHIGAN

Dr. Robb Provides Lectureship.—A lectureship has been established at the Wayne University College of Medicine, Detroit, under the auspices of Alpha Omega Alpha, through a contribution by Dr. James Milton Robb, associate professor of surgery at the school.

Changes in Health Officers.—Dr. John H. Gilpin, Cheboygan, has resigned his position as coroner of the county to become district health officer of Cheboygan, Presque Isle, Montmorency and Alpena counties. —Dr. Buell H. Van Leuven, Traverse City, has been named health director of Chippewa County, effective April 20, with headquarters in Sault Ste. Marie. He has been serving in a similar position in Grand Traverse and Leelanau counties. —Dr. Frederick A. Musacchio has resigned as director of the St. Joseph County Department of Health to accept a similar position with the Laredo-Webb County Health Unit in Texas.

Meeting of Neurologists.—Dr. Roy A. Morter, medical superintendent of the Kalamazoo State Hospital, Kalamazoo, was chosen president-elect of the Michigan Society of Neurology and Psychiatry at its meeting in Detroit, April 27. Dr. Leo H. Bartemeier, Detroit, was installed as president. Among the speakers were:

- Mr. Lee White, director of public relations, the Detroit News, What the Press Thinks of Psychiatrists.
- Mr. William E. Dowling, prosecuting attorney of Wayne County, What Psychiatrists Can Do to Aid Justice.
- Hon. Joseph A. Gillis, judge of Recorder's Court, Detroit, Psychiatrists at the Bar of Justice.
- Rev. Hugh P. O'Neill, S.J., the University of Detroit, The Clergy Looks at Psychiatry.

Rapid Treatment Center for Michigan.—Space is being made available at the University Hospital, Ann Arbor, to house the Michigan Department of Health Rapid Treatment Center. The new unit will have accommodations for 150 patients and is expected to be opened in June. Requests for admission to the rapid treatment center must be made through the local health officer and to the medical officer in charge of the hospital. The average patient will not need to be kept in bed but will be able to engage in normal physical activities. Special attention will be paid to training for employment as well as education and recreation. The necessary time for a patient to remain at the center will vary from one to six weeks.

New Health Council.—A new health council has been appointed by the mayor to make a study of hospitalization and care of the sick in Flint. Members of the council include City Commissioner George Gundry, representing the city; Joseph H. Galliver, county; Dr. Leslie V. Burkett, city-county health officer; Dr. Frederick B. Miner, Genesee County Medical Society; Layton Thompson, tuberculosis association; M. G. Gorman, Clara Elizabeth Fund; Charles S. Mott, Mott Foundation; George A. Jacoby, Visiting Nurse Association; J. C. Baryton, American Federation of Labor; Harold C. Plyer, the C. I. O.; Ralph E. Gault, Hurley Hospital; William S. Balenger, Women's Hospital; A. H. Sarvis, St. Joseph Hospital, and Harry S. Read, D.D.S., dental association.

MINNESOTA

Physician Pleads Guilty to Harrison Narcotic Violation.—On March 25, after Dr. Donald Laing Peterson, Minneapolis, had pleaded guilty in an earlier session to an indictment charging him with two violations of the Harrison Narcotic Law, he was placed on probation by Judge Gunnar H. Nordbye for a period of three years on condition that he leave Minneapolis four days later and proceed directly to the U. S. Public Health Service Hospital at Lexington, Ky., to remain there for treatment of drug addiction until he was discharged as cured. According to the state board of medical examiners, all the narcotics for which Dr. Peterson had been writing prescriptions had been diverted to his own use. Dr. Peterson is the first physician to be indicted in Minnesota in a number of years for violation of the Harrison Narcotic Law. He had been warned

on several occasions by the federal bureau of narcotics to refrain from the use of derivatives of opium and had been cited by the Minnesota State Board of Medical Examiners to show cause on May 12, 1944 why his license as a physician should not be revoked because of habitual indulgence in the use of narcotics.

NEW YORK

New Medical Journal.—The *Northern New York Medical Annual* made its appearance in April. The publication, which will be issued once a year, contains news and scientific material about physicians of northern New York. Dr. Howard N. Cooper is chairman of the board of editors, other members of which include Drs. Charles A. Prudhon, Sutherland E. R. Simpson, William W. Hall, George F. J. Bock and Garner Scullard, all of Watertown. The publication is sponsored by the Jefferson County Medical Society, which hopes to use it as a medium for members in the armed forces.

Mental Hygiene Division Authorized.—The board of supervisors has approved the creation of a division of mental hygiene within the Nassau County Health Department. For the present the personnel will consist of a director who will be a psychiatrist, a psychologist, other psychiatric social workers and necessary clinical assistants. It is hoped that the unit can be started by July 1. It is expected that the New York State Department of Health will reimburse the county to the extent of 50 per cent of the estimated annual cost of \$25,000, the same rate of reimbursement that is now made on all the work of the health department.

Village Insures Employees.—The village of Hempstead has insured 167 employees against medical expenses, becoming, newspapers report, the first municipal community in the United States to give its employees this benefit. Newspapers also stated that the insurance covers all the employees except police, who have their own medical and insurance plan. On April 25 three persons had already used the new insurance, although the program went into effect only April 1. Under the program the employees whose incomes are \$2,500 or less get full coverage for all doctor's bills, while those getting more than that are paid indemnities against the physician's bills.

Surplus Milk Poisons Hospital Patients.—Seventy-four cases of food poisoning in one city hospital in New York were reported in the newspapers May 3. Evaporated milk had been supplied free by the government from a reported 45 million pound oversupply and was said to have been originally obtained by the government for British use and to have been kept in storage for as long as two years, in some cases, before being turned over by the War Food Administration for free distribution to hospitals and other institutions. The outbreak of the food poisoning prompted an order from the New York City Department of Health to place an embargo on 1,200 cases of the milk. Free distribution of the supply was stopped.

New York City

Internships Available.—The Hospital for Joint Diseases announces house staff appointments available to fill twelve places on the general rotating service. Four interns will be needed October 1 and eight to begin July 1, 1945. Additional information may be obtained from the hospital, 1919 Madison Avenue, New York 35.

Medical Stamp Exhibit.—An exhibition of stamps depicting nurses, hospitals, physicians and medical scientists was on display in Gimbel's stamp department May 8-15, in honor of National Hospital Day, May 12. The display was made possible by Drs. Anna R. Young, Stamford, Conn., Louis A. Sarrow, Far Rockaway, N. Y., Joseph C. Horan and Otho C. Hudson, Hempstead, N. Y., who lent their individual collections.

Eye Bank Established at New York Hospital.—What is described as the first eye bank in the United States has been established at New York Hospital, newspapers reported May 9. The unit will be used to store human corneas as they become available for later use in treating certain types of blindness. In the operation of the new bank, eyes will be collected either from living persons or from those who arrange to have them removed immediately after death, it was stated.

Blue Cross Membership Increases.—The Associated Hospital Service of New York reports that 86,250 new members, 75 per cent of the yearly total of 113,424 reported for 1943, were recorded in the first quarter of 1944. In the seven-teen counties of lower New York State served by Associated Hospital Service 1,528,801 persons are now members of the Blue Cross plan. A release from the service states that the

increase in New York was the second largest reported by all Blue Cross plans in a quarter which set a new record also for total increase in the United States and Canada. The largest increase occurred in the Massachusetts plan, which is statewide. In the country as a whole an additional 793,503 employed persons and their dependents enrolled during the first three months of this year, bringing the total membership of all seventy-seven plans to 13,798,996 persons, exclusive of about 600,000 contracts suspended by members of the armed forces until their return to civil life.

Foundation Created to Care for Advanced Cancer Patients.—The National Foundation for the Care of the Advanced Cancer Patients has been incorporated in New York with Dr. Frank E. Adair as medical adviser. The newly formed group is nonsectarian and is designed to provide beds and care in already established institutions or to finance the establishment of new institutions, if necessary, to provide assistance for advanced cancer patients of "moderate means." The new foundation will have offices at 450 Seventh Avenue. In addition to Dr. Adair, other members of the organizing committee include Julius Jay Perlmutter, president of Conar Associates, merchandise brokers; Dr. Ira I. Kaplan, director of the radiation department, Bellevue Hospital, and clinical professor of surgery at New York University College of Medicine; Morris M. Bernstein, of the firm of Bernstein & Wolff, chairman of the board of the National Association of Merchandise Brokers; Mrs. Francis J. Rigney, commander in the Metropolitan area of the Women's Field Army of the New York City Cancer Committee, and Irving I. Friedman, member of the New York Bar. Sixty members comprise the sponsoring committee. The new group plans eventually to become national in scope, although in the immediate future it will concentrate on providing for the New York City area.

NORTH CAROLINA

Changes in Health Officers.—Dr. Ballard Norwood Jr., Oxford, has resigned as health officer of Granville County to enter private practice in Oxford.—Dr. Leo B. Skeen, Statesville, has resigned as health officer of Iredell County to enter the practice of medicine.

Dr. McCain Honored.—Friends gathered at the North Carolina Sanatorium for the Treatment of Tuberculosis, Sanatorium, recently to honor Dr. Paul P. McCain, who has completed thirty years as medical director and superintendent of the sanatorium. He joined the staff as assistant superintendent and chief of the medical service March 1, 1914. Dr. McCain was president of the Medical Society of the State of North Carolina in 1935 and of the National Tuberculosis Association in 1941.

New Professorship in Medical Literature.—Dr. Frederick R. Taylor, associate professor of clinical medicine, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, has been named to a newly created position of professor of medical literature. The course in medical literature and medical writing includes instruction of the students in the relative value of various publications, the ethics of medical writing and the editing of medical papers. The course also instructs the students in the ways of keeping abreast of medical literature and stresses its importance to the physician.

OHIO

State Medical Election.—Dr. Edgar P. McNamee, Cleveland, was chosen president-elect of the Ohio State Medical Association during its annual meeting in Columbus, May 2-4, and Dr. Louis Howard Schriver, Cincinnati, was inducted into the presidency. Dr. Harry E. LeFever, Columbus, is treasurer and Mr. Charles S. Nelson, Columbus, executive secretary.

Dr. Corlett Observes Ninetieth Birthday.—Dr. William T. Corlett, professor emeritus of dermatology, Western Reserve University School of Medicine, Cleveland, observed his ninety-ninth birthday April 15. According to the *Cleveland Plain Dealer*, Dr. Corlett is credited with starting health visitation of public schools and establishing the department of dermatology and syphilology at Lakeside Hospital.

Personal.—Dr. Thomas F. Heatley has been appointed a member of the Toledo Board of Health to succeed Dr. Edward J. McCormick, who resigned recently.—Dr. Charles J. Shepard, emeritus clinical professor of medicine (dermatology) at Ohio State University College of Medicine, Columbus, observed the fiftieth anniversary of his graduation at Bellevue Hospital Medical School, New York, March 17.

Alumni Association Celebrates 125th Anniversary.—On May 4 the University of Cincinnati College of Medicine Alumni Association held its 125th anniversary banquet at the Hotel Netherland Plaza. It was stated that several units of the association throughout the country held simultaneous founder's day events. Cincinnati College and the Medical College of Ohio, now integral parts of the University of Cincinnati, were chartered by legislative action in January 1819. The Medical College of Ohio opened on Nov. 1, 1820 and later merged with the Miami Medical College, founded in Cincinnati in 1852 as the college of medicine of the University of Cincinnati. At the recent celebration Dr. Tom D. Spics, associate professor of medicine at the medical school, delivered the principal address.

PENNSYLVANIA

Ninety Years of Age.—Dr. Michael J. Buck, Wilkesburg, observed his ninety-second birthday April 13. Dr. Buck graduated at the Jefferson Medical College of Philadelphia in 1872 and the Hahnemann Medical College of Philadelphia in 1876.—Dr. John H. Sandel, Danville, celebrated his ninety-ninth birthday April 11. Dr. Sandel, who retired from the active practice of medicine about five years ago, graduated at the Hahnemann Medical College of Philadelphia in 1882.

Philadelphia

Personal.—Dr. Catharine Macfarlane has been elected president of the Philadelphia Division, Women's Field Army, American Society for the Control of Cancer.

Phi Delta Epsilon Lecture.—Dr. Samuel A. Levine, Boston, will deliver the Phi Delta Epsilon Lecture at Jefferson Medical College of Philadelphia, May 25, on "Some Notes Concerning Cardiac Murmurs."

SOUTH CAROLINA

Personal.—Martin D. Young, pathologist of the National Institute of Health, in charge of the institute's malaria research laboratory at Columbia, S. C., has been commissioned as sanitarian (reserve) in the U. S. Public Health Service.—Roe E. Remington, Sc.D., has resigned as chemist and director, food research department of the Medical College of the State of South Carolina, Charleston.

Alumni Plans Lectureship for Dr. Wilson.—At a meeting of the alumni association of the Medical College of the State of South Carolina, Charleston, April 12 in Columbia it was decided to establish a lectureship in honor of Dr. Robert Wilson, who recently retired as dean of the medical school. Dr. Joseph I. Waring, Charleston, was elected president of the alumni association to succeed Dr. Strother Pope, Columbia. Other officers are Dr. James T. Quattlebaum, Columbia, vice president, and Dr. Richard W. Hancel Jr., Charleston, secretary and treasurer. Announcement of a \$1,500 gift was also made toward the expansion program at the university planned to include a postgraduate seminar to be held annually at the school.

UTAH

Dr. Dippel Resigns at Utah.—Dr. A. Louis Dippel has resigned as professor and head of the department of obstetrics and gynecology at the University of Utah School of Medicine, Salt Lake City, newspapers report. Dr. Emil G. Holmstrom, assistant professor of obstetrics and gynecology, has been named acting head until a successor is chosen.

WEST VIRGINIA

License Revoked.—The license of Dr. Warren Burton Taylor Jr., Logan County, who was recently convicted of second degree murder in the death of Lee Porter, 38 year old miner of Ethel, was revoked. Dr. Taylor is said to be serving a term of five to eighteen years in the state penitentiary at Moundsville.

Personal.—Dr. Irvine Saunders, Welch, has been appointed medical superintendent of the Welch Emergency Hospital, succeeding Dr. Frank E. LaPrade, who retired several months ago because of ill health. Dr. James C. Hutchinson, who has been serving as acting superintendent, is now on the surgical staff at Mayo Clinic, Rochester, Minn. Dr. Saunders, who has been on the staff of Grace Hospital at Welch since 1942, is secretary of the McDowell County Medical Society.

Reciprocal Agreement with Kentucky.—The public health council of West Virginia at a meeting in Charleston in May approved a new reciprocal agreement with Kentucky for the licensing of physicians. Reciprocal relations have been maintained for the past several months under a "gentlemen's

agreement" between the two health departments of the two states, but the recent meeting made the action official. The session was attended by Dr. Philip E. Blackerby, Louisville, state health commissioner of Kentucky.

GENERAL

National Science Fund Moves.—The National Science Fund of the National Academy of Sciences has moved its offices to the Academy of Sciences, 2101 Constitution Avenue, Washington 25, D. C., from 515 Madison Avenue, New York.

Society News.—The American Congress of Physical Therapy will hold its twenty-third annual scientific and clinical session at the Hotel Statler, Cleveland, September 6-9. Marion G. Smith, B.Sc., 30 North Michigan Avenue, Chicago 2, is executive secretary of the congress.—The Southern Medical Association announces that it will hold its annual meeting at the Municipal Auditorium, St. Louis, November 13-16.

Research Council Fellowships.—At a recent meeting of the medical fellowship board of the National Research Council, Washington, D. C., fellowships in the medical sciences were awarded to Dr. Sidney S. Sobin, Harvard Medical School, Boston, and Dr. Harry A. Wilmer, Johns Hopkins University School of Medicine, Baltimore. Two renewals were made in fellowships in the filtrable viruses to Edward H. Anderson, Ph.D., Vanderbilt University, and Dr. I. William McLean Jr., Duke Hospital. Dr. Paul S. Rubin, Johns Hopkins University, was appointed to a fellowship in orthopedic surgery.

Levi Memorial Hospital Offers Records to Medical College for Baruch Study.—The trustees of the Leo N. Levi Memorial Hospital, Hot Springs National Park, Ark., at their annual meeting in New York, May 6, offered to turn over to the Medical College of Virginia, Richmond, the hospital's entire facilities and scientific records as their contribution to participate in the Baruch program for research in physical medicine. The Medical College of Virginia was recently designated as one of the beneficiaries under the million dollar program sponsored by Bernard M. Baruch (THE JOURNAL, April 29, p. 1311).

American Laryngological Association.—The sixty-sixth annual meeting of the American Laryngological Association will be held at the Waldorf-Astoria, New York, June 7-8, under the presidency of Dr. Charles J. Imperatori, New York. Among the speakers will be:

- Dr. Samuel J. Crowe, Baltimore, The Local Use of Sulfadiazine Solution, Radon, Tyrothricin and Penicillin in Otolaryngology.
- Dr. Samuel Salinger, Chicago, Traumatic Deformities of the Nasal Septum.
- Lieut. Col. Paul A. Campbell, M. C., Aeronautics: A Résumé.
- Dr. Chevalier L. Jackson, Philadelphia, Inter-American Relations in Otolaryngology.
- Dr. Joseph D. Kelly, New York, Problems in the Surgical Treatment of Bilateral Abductor Muscular Paralysis of the Larynx.

American Ophthalmological Society.—The eightieth annual meeting of the American Ophthalmological Society will be held at the Homestead, Hot Springs, Va., May 29-31, under the presidency of Dr. John Green, St. Louis. Among the speakers will be:

- Drs. Peter C. Kronfeld and Joseph S. Haas, Chicago, Further Study of the Glaucoma Due to Peripheral Anterior Synchiae Following Delayed Restoration of the Anterior Chamber After Cataract Operation.
- Dr. Algernon B. Reese, New York, Deep Chamber Glaucoma Due to the Formation of a Cuticular Product in the Filtration Angle.
- Dr. Frank D. Carroll, New York, Visual Symptoms Caused by Digitalis.
- Drs. Frank B. Walsh and Walter E. Dandy, Baltimore, The Pathogenesis of Intermittent Exophthalmos.
- Drs. Jonas S. Friedenwald and William H. Buselike, Baltimore, Some Factors Concerned in the Mitotic and Wound Healing Activities of the Corneal Epithelium.

Society for Research in Psychosomatic Problems.—The annual meeting of the American Society for Research in Psychosomatic Problems will be held at the Stevens Hotel, Chicago, June 10-11, under the presidency of Dr. Tracy J. Putnam, New York. Speakers will include:

- Drs. John Romano and George L. Engel, Cincinnati, Studies of Syncope: Vasodepressor, Carotid Sinus and Hysterical Syncope.
- Dr. Milton Rosenbaum, Cincinnati, Psychosomatic Factors in Pruritus.
- Dr. Helen Flanders Dunbar and George H. Soule Jr., New York, Suggestions Preliminary to a Psychosomatic Nosology.

An afternoon session Sunday will be devoted to "The Role of the Autonomic Nervous System in Functional Disorders" with the following speakers: Robert G. Heath, P. A. Surg., U. S. Public Health Service Reserve, Drs. Mandel E. Cohen and Paul D. White, Boston, Col. William Warner, R. C. A. M. C., and Dr. Stephen Rothman, Chicago.

Rabies Prevalent in 1943.—An Associated Press summary, published April 11, indicated that rabies was more widespread last year than any time in five years, with preliminary government reports showing 33 human deaths from rabies

while 7,348 animals died from the disease. In 1942 there were only 28 human deaths and 7,137 animal deaths. The report indicated that the disease was widespread in Washington, D. C.; 104 animals were found to be rabid and 110 persons were bitten. The report stated that only 4 cases of rabies had been reported in Washington in the decade 1932-1942 and all were traced to dogs which came from other areas.

Meeting of Tuberculosis Physicians.—The annual meeting of the American Academy of Tuberculosis Physicians will be held at the Palmer House, Chicago, June 13, under the presidency of Dr. Karl J. Henrichsen, Chicago. Among the speakers on the program will be:

- Capt. Hyman E. Bass, M. C., Tuberculosis and Coccidiomycosis.
- Dr. Irvin S. Neiman, Chicago, The Chronological Appearance of Allergy and Immunity in Experimental Tuberculosis.
- Dr. Truman S. Potter, Chicago, Facts and Reflections Bearing on Problem of Prevention of Tuberculosis.
- Dr. Charles F. Taylor, Norton, Kan. (subject not announced).
- Dr. Harry J. Corper and Maurice L. Cohn, Ph.D., Denver, Demonstration of the Transdermal Tuberculin Test.
- Dr. Zoltan Galambos, Chicago, The Clinical Significance of Hypersensitivity in Tuberculosis.
- Dr. Charles K. Petter, Waukegan, Ill., Experiences with Diasone in Clinical Tuberculosis.
- Dr. Marie Severac, George W. Raiziss, Ph.D., and John C. Moetsch, Philadelphia, Diasone and Its Chemotherapeutic Properties.
- Dr. Karl E. Kassowitz, Milwaukee, Healed Subclinical Military Tuberculosis.
- Dr. Oscar S. Levin, Denver, The Tuberculologist and Present Tuberculosis Statistics.

At a luncheon meeting Dr. Edward H. Hume, director of the Christian Medical Council for Overseas Work, New York, and formerly visiting professor of the National College of Medicine in Shanghai, China, will discuss "Tuberculosis in China" and Dr. Petter "Modern Sanatorium Planning and Functioning."

Government Services

Portrait of Colonel Jones

At special ceremonies, May 13, the friends of the Army Medical Library presented a portrait of Col. Harold W. Jones, U. S. Army, retired, Washington, D. C., to the library in recognition of his contribution to the advancement of medicine and particularly his adoption of microfilm copying as a legitimate extension of the service rendered by the library to those at a distance. A feature of the presentation was inspection of the recently enlarged installation of the photoduplication service of the Army Medical Library.

Dr. Dunbar Named Chief of Food and Drug Administration

Paul B. Dunbar, Ph.D., associate commissioner of the Food and Drug Administration, Federal Security Agency, on May 6 was appointed commissioner to succeed Walter G. Campbell, who retired April 30 under the voluntary provisions of the retirement act. Dr. Dunbar received his doctor of philosophy degree in chemistry from Johns Hopkins University, Baltimore, and has been associated with Mr. Campbell for thirty-seven years. Mr. Campbell entered the service as chief when the food and drug act of 1906 became effective, and organized, under the general direction of the late Dr. Harvey W. Wiley, the small staff of food and drug inspectors on a nationwide basis and formulated plans for inspection operation. In 1916 he was named assistant chief of the bureau of chemistry under the late Dr. Carl L. Alsberg and was placed in charge of the food and drug law enforcement operations. In 1923 he became director of regulatory work in the department of agriculture and in 1927 organized the Food and Drug Administration, which he has since continuously directed. When the Food and Drug Administration was transferred from the department of agriculture in 1940, Mr. Campbell was designated as commissioner of food and drugs. It was stated that he was largely instrumental in presenting the facts that led to the enactment of the Federal Food, Drug and Cosmetic act in 1938.

CORRECTION

The Rickettsial Diseases.—In the article by Dr. R. E. Dyer in THE JOURNAL, April 22, the word "typhus" in the second column of page 1170, twenty-third line, should read "spotted fever."

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 15, 1944.

Hysterical Nature of the So-Called Pernicious Vomiting of Pregnancy

For thirty years Sir Arthur Hurst has been convinced that the so-called pernicious vomiting of pregnancy is always hysterical. But the condition is still insufficiently understood and, while there should be no mortality, fifty or sixty deaths are registered annually. Hurst's teaching was accepted by some leading obstetricians and in the "Midwifery" by Ten London Teachers the belief that a toxic form of the vomiting of pregnancy exists was rejected. But most modern textbooks still discuss the differential diagnosis between the toxic and the nervous form of pernicious vomiting of pregnancy. Hurst has therefore returned to the attack in the *Clinical Journal*. Gibberd has rewritten the chapter on hyperemesis gravidarum in the "Midwifery." He teaches that the rare cases in which Korsakoff's syndrome of peripheral neuritis with mental symptoms develops are toxic in origin, because of the resemblance of the clinical and pathologic findings to those produced by alcohol. But Hurst points out that it has been proved that alcohol is never per se a cause of the syndrome, which is really the result of the associated vitamin B deficiency. Whitridge Williams believed that there was no clinical distinction between the nervous and the toxemic cases and that the only reliable means of diagnosis was estimating the ammonia coefficient of the urine. An increase of this pointed infallibly to toxic vomiting and was an urgent indication for prompt termination of the pregnancy, as otherwise death would occur in a few days. But Hurst points out that the high ammonia coefficient is not due to toxemia but to the starvation consequent on the vomiting. The following is an illustration: A woman aged 32 was admitted to Guy's Hospital and a diagnosis of pernicious vomiting of pregnancy was made, as Dr. J. H. Ryffel found that the ammonia index was 28. There was a large amount of diacetic acid in the urine. The patient vomited everything. Her pulse was 136, she was emaciated and her skin was dry and inelastic. Her tongue was dry and covered with dark brown fur. Her mind was clear. She was told by her father that she would have a bad time, as her mother vomited all the time she was carrying the patient. Hurst explained to her that there was no good reason why she should have continued to vomit after the first six weeks, in which vomiting is normal, and that her father's suggestion at such a time was all that was needed to lead to her present condition. He talked to her for about ten minutes and succeeded in convincing her that she would not vomit again. Later he returned to her and watched her eat buttered toast and tea, which she had chosen for her first meal. She felt no inclination to vomit. She had a good supper but vomited her breakfast next morning. She was transferred to a better psychologic environment and had no further trouble. Eleven months after labor she again became pregnant and at once began to vomit. The vomiting became so severe that her doctor discussed terminating the pregnancy. She was again admitted, and the vomiting yielded to psychologic treatment.

Hurst contends that his case shows that no reliance can be placed on either the clinical or the chemical diagnosis of toxemic vomiting of pregnancy. He does not believe that such a condition exists apart from the vomiting associated with eclampsia and acute hepatic necrosis. It should be noted, however, that jaundice, caused presumably by subacute hepatic necrosis, may result from hysterical vomiting, and that it rapidly disappears

with an adequate diet. The division into nervous and toxemic cases is fallacious. All patients are nervous, but the word "hysterical" should be substituted for "nervous," as the condition is typically hysterical and curable by psychotherapy.

New Inquiry Into the Causes of Illness

The facts relating to ill health differ from those relating to mortality and are not so well known. In a communication to the *Times* Sir E. Farquhar Buzzard points out that the collection and analyses of the causes of illnesses of all kinds, nonfatal as well as fatal, are a need which is being increasingly recognized. The Nuffield Provincial Hospitals Trust has established experimental regional records bureaus for the study and analysis of the prevalence and distribution of the various forms of sickness. One bureau is housed at the Nuffield Institute of Social Medicine, Oxford. A leading clinician, Prof. J. A. Ryle, who occupies the chair of social medicine, has undertaken the general control of this bureau. At the early stage the work is limited to collecting information in respect of Oxford City and the local hospitals. This limited task is expected to involve consultation of some 165,000 health and sickness records per annum. Buzzard stresses the need for knowledge of the facts in relation to ill health as distinct from mortality. With the aid of the new classification of diseases and injuries published by the Medical Research Council and the cooperation of hospital and other local authorities it is hoped to discover whether, in respect of a given area, an integrated picture of health and sickness can be made available to those charged with planning postwar medical services, preventive and curative, domiciliary and institutional.

BUENOS AIRES

(From Our Regular Correspondent)

April 4, 1944.

Poliomyelitis in Argentina

The National Department of Hygiene recently published a report giving the number of cases of paralytic forms of poliomyelitis in the federal capital in the course of the epidemic from October 1942 to March 1943. Small foci of cases of poliomyelitis were observed in various parts of the country in the course of the epidemic, which started in the central zones of the province of Buenos Aires and the federal capital in October 1942. The number of new cases in remote areas of the province increased as the number of cases in the areas previously involved decreased. A peculiarity of this epidemic was the great number of infants from birth to 1 year of age who had the disease.

Drug Addicts to Be Registered

Reporting drug addiction is obligatory for physicians, dentists and pharmacists who are informed of the habituation in the practice of their profession. The Office for the Control of Narcotics, which is a branch of the Department of Public Health and Social Aid, will carry records of all drug addicts, who will then receive proper medical care during and after intoxication. Professional men failing to report known cases will be fined. In case of recurring negligence they will be temporarily deprived of their licenses. Some complementary measures for the correction of addicts, such as confinement and interdiction of certain civil privileges, will be probably resorted to also.

First Pan American Congress of Mental Hygiene

The First Pan American Congress of Mental Hygiene will be held consecutively in Buenos Aires and Rio de Janeiro. Problems of postwar hygiene and sanitation will receive special attention. Dr. Eugenio A. Galli, the secretary of public health and social aid, and Dr. Gonzalo Bosch are the honorary and active presidents of the congress. Negotiations are already under way to establish committees in the twenty-one American republics and Canada for the formation of a central committee.

BRAZIL

(From Our Regular Correspondent)

April 4, 1944.

Regulations on Use of Quinine Salts

The shortage of quinine salts is acute in Brazil, because it has been impossible to import any quantity of the drug during the current year. Because an important part of the present stock is indispensable for the treatment of cases of malaria, the government has decided to put into force some measures to control the situation. Following a recommendation of the ninth Pan American Sanitary Conference the Division of Pharmacy and Chemistry of the National Department of Health will not license, from now on, any pharmaceutical preparation for the treatment of malaria that does not contain the minimum of 0.25 Gm. (about 4 grains) of quinine salts per unit (pill, tablet, confection, ampule or capsule). The division will make a revision of the licenses already issued for all such preparations in order to comply with this regulation. During this period of shortage of quinine no new pharmaceutical preparation containing quinine salts shall be licensed if it is not intended to be used for the treatment of malaria, and also a revision of the licenses of all the preparations already in use will be done in order to force the use of other drugs in the formulas instead of quinine. By so doing the National Department of Health is reserving the stock of quinine for the treatment of malaria.

Antitoxic Principle of Liver

At a recent meeting of the St. Lukas Medical Society Dr. J. Lacaz de Moraes reported the action of various commercial products containing the active antitoxic principles of liver on the arterial blood pressure (Ludwig method), the cardiac rhythm, the pulse oscillation, the volume of the spleen (oncography) and the thoracic respiratory rhythm (pneumography) in the dog, their action on the vessels of rabbits' ears (Pissem-sky's method), on isolated rabbit's heart (Langendorff's method), on isolated intestine and uterus of guinea pigs (Schultz-Dale's tests) and their intradermic reaction (Lewis's test). These experiments have been repeated with other substances encountered in the commercial products mentioned (adrenal cortex extract, nicotinic acid, pantothenic acid and thiamine). Dr. Lacaz withdrew and measured the histamine (Barsoun-Gaddum-Code method) found in various products analyzed in amounts which ranged from zero to 64 Gm. per cubic centimeter of liver extract available in the market. The histamine was found to be the direct cause of the bad effects obtained; its presence depends on lack of technic in the preparation of the commercial products mentioned containing the antitoxic principle of liver.

Death of Dr. J. de Castro Teixeira

Dr. J. de Castro Teixeira, head of the Division of Virus of the Oswaldo Cruz Institute, died recently at the age of 38. With the death of Dr. Teixeira, Brazilian medicine has suffered the loss of one of its most brilliant representatives, and the institute has been deprived of one of its leading scientists, an exceptionally efficient and capable worker. As soon as he graduated from the University of Rio de Janeiro Dr. Teixeira began at the Oswaldo Cruz Institute his career of investigation in the then new field of virus diseases, in which he became an accomplished specialist. Since the opening of the Rockefeller Foundation Laboratory of Rio de Janeiro devoted to the study of virus diseases in general and yellow fever in particular, Dr. Teixeira has been connected with that institution, which granted him, a few years ago, a special fellowship to study his specialty in the United States. Recently, since Brazilian health authorities feared the importation of influenza epidemics striking Great Britain and the United States, Dr. Teixeira, in close association with the Rockefeller Laboratory, worked in the production of

influenza vaccine, profiting by the presence in Rio de Janeiro of Dr. Richard M. Taylor, a specialist in the epidemiology of influenza, and Dr. Edwin H. Lennette, a leading authority in virus diseases. Dr. Teixeira's name will be revered in the Oswaldo Cruz Institute along with the names of Oswaldo Cruz, Carlos Chagas, Gaspar Vianna and Ezequiel Dias as one of the greatest workers of that institution.

Mortality in a Psychiatric Hospital

According to figures from the latest annual report of Dr. Edgard de Almeida, director of the Praia Vermelha Psychiatric Hospital of Rio de Janeiro, the death rate of the inmates of that institution is declining sharply as operating conditions in the institution are being improved. This hospital belongs to the government of the Union, which still administers some of the health problems of the Federal District (Rio de Janeiro city) and receives patients who, for the most part, have some advanced form of mental ailments. The hospital was operated up to 1942 under poor conditions. The average annual mortality for a few years before 1942 was 33 per cent. but as the excessive number of patients was progressively corrected by the transfer of chronic patients to a psychiatric colony in the suburbs of the city (Colonia Juliano Moreira) and as the food and medical and nursing care was improved the mortality fell to 19 per cent in 1942 and to 4.5 per cent in 1943. There were 1,404 patients in the hospital in 1942 and 814 in 1943 in the same quarters. Dysentery and other intestinal troubles were prevalent among the intercurrent diseases that caused death.

Brief Items

The Brazilian Society of Biology elected to its governing board for the year 1944 Drs. Guilherme Lacorte, Gilberto Villela, Cassio Miranda, Lauro Travassos, M. Ozorio de Almeida and H. C. Souza Araujo.

Dr. Manoel J. Ferreira has been elected president of the Brazilian Society of Hygiene and Public Health for the year 1944. Dr. Ferreira was the field director of the campaign that succeeded in the eradication of *Anopheles gambiae* from the northeast section of Brazil (1939-1941), in cooperation with Drs. Fred L. Soper and D. Bruce Wilson of the Rockefeller Foundation.

Marriages

AUGUSTUS WILLIAM ANDERSON, Hammond, La., to DR. CAROLYN D. TALLEY of Dallas, Texas, in New Orleans in April.

WALTER DICKENSON WOODWARD, Richmond, Va., to Mrs. Alice Myrtle Nevins in Clifton, S. I., N. Y., April 15.

FRANCIS JAMES GRANT, Newark, N. J., to Miss Catherine Wilson Furlong of Charleston, S. C., April 15.

JAMES SAMUEL GARNER JR., Rome, Ga., to Miss Alice Victor Tate in Calhoun Falls, S. C., March 18.

WILLIAM ANDREW SWEAT, Corinth, Miss., to Miss Martha Thomas Oursler of Humboldt, Tenn., April 8.

EDMUND R. BLOWER, Akron, Ohio, to Miss Anna Dean Burks of Chapel Hill, N. C., April 29.

JOHN M. JOHNSON, Manchester, N. H., to DR. MARY B. FINCK of Westfield, N. J., March 18.

JOHN L. LA MOTTE, Half Moon Bay, Calif., to Miss Doris Helene Irwin of Belmont in April.

DONALD C. CONRAD, Middletown, Pa., to Miss Zenna M. Beckey in Jackson, Miss., April 9.

WILLIAM THOMAS PAYNE III to Miss Mary Frances Estes, both of Dallas, Texas, in March.

JOHN M. CAMERON, Faunsdale, Ala., to Miss Harriet Connor of Peoria, Ill., March 11.

CHARLES B. OLIM, Memphis, Tenn., to Miss Dorothy Marie Beck of Chicago, April 6.

JOHN O. RYDEEN to Miss Olivee Maria Nadonley, both of Norfolk, Va., March 30.

Deaths

Jonas Samuel White, Salisbury, Md.: Jefferson Medical College of Philadelphia, 1893; fellow of the American College of Surgeons; served during the Spanish-American War, the Philippine Insurrection and World War I; lieutenant in the medical reserve corps of the U. S. Army from 1919 to 1929; at one time on the visiting staffs of the Miller, St. Luke's and St. Joseph's hospitals in St. Paul and associated with the Civilian Conservation Corps in Fort Riley, Kan., Fairbury, Neb., Fort Crook, Neb., Hinckley, Minn., Red Wing, Minn., and Bayport, Minn.; formerly on the staff of the Veterans Administration Facility in Perry Point, Md.; died in the Peninsula General Hospital February 20, aged 72, of cerebral hemorrhage, arteriosclerosis and hypertension.

Daniel E. Ricardo * Chicago; National Medical University, Chicago, 1904; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905, where he later served as assistant in clinical surgery; professor of orthopedic surgery at the Chicago Hospital College of Medicine; served as civil service health officer for the Chicago Health Department from January 1907 until January 1910, when he resigned; on the staffs of the Jackson Park and Woodlawn hospitals; medical examiner for the Selective Service System; died April 17, aged 70, of angina pectoris and coronary occlusion.

Fred Yohn Cronk * Tulsa, Okla.; Johns Hopkins University School of Medicine, Baltimore, 1907; fellow of the American College of Surgeons; a director of the Tulsa County Public Health Association; for many years chief surgeon for the Mid-Continent Petroleum Corporation; adviser for the Selective Service System; member of the staffs of the St. John's and Hillcrest hospitals; at one time chief surgeon at the Methodist Hospital, Guthrie; member of the Rotary Club of Tulsa and the Knife and Fork Club; died February 13, aged 61, of coronary thrombosis.

Will Otto Bell, Seattle; Hahnemann Medical College and Hospital, Chicago, 1905; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; member of the Washington State Medical Association, American Academy of Ophthalmology and Otolaryngology, Western Ophthalmological Society and the Pacific Coast Ophthalmological Society; fellow of the American College of Surgeons; specialist certified by the American Board of Ophthalmology; consulting ophthalmologist, King County Hospital; died February 3, aged 67, of pulmonary embolism.

Raymond Lent Baker, Utica, N. Y.; New York University Medical College, New York, 1898; formerly served as surgeon for the police and fire bureaus and as deputy health officer; member of the staff of the Faxton Hospital; died March 17, aged 67.

James Bell Anderson * Yazoo City, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1896; died in the King's Daughters Hospital March 14, aged 71, of pneumonia.

Charles W. Ash, Bay City, Mich.; Detroit College of Medicine, 1903; member of the Michigan State Medical Society; died in the General Hospital March 4, aged 66, of hypertrophic cirrhosis of the liver and a fracture of the right femur following a fall.

Samuel Cecil Austin, Charleston, W. Va.; College of Physicians and Surgeons, Baltimore, 1908; died in a local hospital March 11, aged 66, of injuries received in an automobile accident March 7.

Hart B. Baxter * Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1891; died March 16, aged 73, of cerebral hemorrhage.

Frank J. Berger, Chicago; National Medical University, Chicago, 1902; died in the American Hospital March 31, aged 86, of carcinoma of the prostate.

Eugene Orleans Boggs, Spring, Texas; St. Louis College of Physicians and Surgeons, 1892; honorary member of the State Medical Association of Texas and member of the Association of Railway Surgeons of Texas; served as president of the chamber of commerce; died in Corpus Christi March 15, aged 77, of heart disease.

Eugene P. Bowers, Vincennes, Ind.; Barnes Medical College, St. Louis, 1905; on the staff of the Good Samaritan Hospital; died March 1, aged 66, of pneumonia and pulmonary infarct.

William Francis Brady * St. Petersburg, Fla.; Tufts College Medical School, Boston, 1909; member of the Massachusetts Medical Society; fellow of the American College of Surgeons; served as visiting surgeon at the Providence Hospital, Holyoke, Mass.; died February 28, aged 58, of coronary thrombosis.

Julius Brandwein * New York; Eclectic Medical College, Cincinnati, 1925; on the staffs of the Manhattan General and Downtown hospitals; died March 7, aged 46, of coronary thrombosis.

Charles Hutchison Brisbin, Lewistown, Pa.; Jefferson Medical College of Philadelphia, 1890; died in Malvern February 23, aged 76.

George Greenleaf Bulfinch, Brookline, Mass.; Harvard Medical School, Boston, 1874; member of the Massachusetts Medical Society; died in Natick March 14, aged 95, of generalized arteriosclerosis.

Lyman Lyndon Bunker, Fernandina, Fla.; St. Louis College of Physicians and Surgeons, 1909; member of the Florida Medical Association; served as vice president of the Nassau County Medical Society; during World War I served as a major in the medical corps of the U. S. Army and as a surgeon in charge of Biltmore Hospital number 12 at Asheville, N. C.; for many years Nassau County physician; died in St. Vincent's Hospital, Jacksonville, March 8, aged 67.

Charles William Bush, Boston; Boston University School of Medicine, 1899; fellow of the American College of Surgeons; consultant, Massachusetts Memorial Hospitals; died in the Hahnemann Memorial Hospital, February 25, aged 71.

Arthur Jay Button, Hackensack, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1906; formerly owner of the Holman Hospital, Pine River, and the General Hospital, Greenbush; served as medical director of the Hiddenwood Hospital; died February 26, aged 74, of tumor of the right lung.

Lenore Nelson Carlisle * Hampton Bays, N. Y.; Woman's Medical College of Pennsylvania, Philadelphia, 1907; died March 19, aged 70.

William Thomas Cluney, Chicago; Northwestern University Medical School, Chicago, 1901; at one time on the staff of the Medfield State Hospital, Harding, Mass.; died March 2, aged 65, of pneumonia.

Michael Joseph Coffey, Newark, N. J.; Baltimore Medical College, 1909; member of the Medical Society of New Jersey; died March 2, aged 65, of hypostatic pneumonia.

Robert Williams Cooper * Shreveport, La.; University of Pennsylvania School of Medicine, Philadelphia, 1923; member of the Radiological Society of North America, Inc., and the American College of Radiology; specialist certified by the American Board of Radiology, Inc.; radiologist at the Shreveport Charity Hospital and the T. E. Schimpert Memorial Sanitarium; secretary of the Shreveport Clinic; died in Galveston, Texas, March 13, aged 46.

Eliphalet A. Cornell, Sault Ste. Marie, Mich.; Michigan College of Medicine and Surgery, Detroit, 1892; member of the Michigan State Medical Society; served as coroner for many years; died February 19, aged 81.

John Emmett Crawford * Bartlesville, Okla.; University of Nashville (Tenn.) Medical Department, 1903; member of the staff of the Washington County Memorial Hospital; died March 19, aged 73, of coronary thrombosis.

John Joseph Curtin * Waltham, Mass.; Harvard Medical School, Boston, 1908; school physician; member of the staff of the Waltham Hospital; died March 10, aged 61, of coronary disease.

Byron Danford * Athens, Ohio; University of Cincinnati College of Medicine, 1924; served during World War I; died in the Sheltering Arms Hospital March 1, aged 44, of injuries received in an automobile accident.

Joseph Steven Deane, Corona, N. Y.; Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultása, Budapest, Hungary, 1914; member of the Medical Society of the State of New York; served in the medical corps of the Hungarian army during World War I; died in the New York Post-Graduate Medical School and Hospital, New York, March 8, aged 55, of chronic nephritis.

John C. Delprat * Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1894; Northwestern University Medical School, Chicago, 1903; fellow of the American College of Surgeons; for thirteen years chief surgeon at the

Cook County Hospital; attending surgeon at the Illinois Central Hospital, where he died March 2, aged 76, of carcinoma of the colon.

Gregg Arthur Dillinger, Pittsburgh; University of Pennsylvania Department of Medicine, Philadelphia, 1894; member of the Medical Society of the State of Pennsylvania; formerly city councilman; served in France during World War I as a lieutenant colonel with the 28th Division; a member on the board at Carnegie Library; died in the Elizabeth Steel Magee Hospital March 1, aged 72, of pneumonia and heart disease.

Andrew B. Drafts, Hendersonville, N. C.; University of Virginia Department of Medicine, Charlottesville, 1896; died in the Mission Hospital, Asheville, March 3, aged 72, of a fractured hip received in a fall and carcinoma of the prostate.

Curran Bertram Earle ♂ Greenville, S. C.; University of Maryland School of Medicine, Baltimore, 1896; past president of the Greenville County Medical Society and the South Carolina Medical Association; served as a major in the medical officers' reserve corps during World War I; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; formerly chairman of the city board of health; on the staffs of the Greenville General and St. Francis hospitals; died March 21, aged 68, of heart disease.

Nicholas Henry Ellis, Williamstown, Ky.; Kentucky University Medical Department, Louisville, 1904; formerly health officer of Grant County; died March 5, aged 76.

Harry Richard Silas Emes, Niagara Falls, N. Y.; University of Buffalo School of Medicine, 1904; member of the Medical Society of the State of New York; on the staffs of Niagara Falls Memorial and Mount St. Mary's hospitals; county coroner; died March 20, aged 68, of coronary thrombosis hypertension and arteriosclerosis.

Cortez Ferdinand Enloe, Jefferson City, Mo.; Vanderbilt University School of Medicine, Nashville, Tenn., 1901; member of the Missouri State Medical Association; at one time secretary and commissioner, state board of health of Missouri; served as director of the board of penal institutions; vice president of the Cortez King Brand Mines Company; on the staff of St. Mary's Hospital; died March 7, aged 63, of sarcoma.

Isaac Ferree, Livonia, Ind.; Kentucky School of Medicine, Louisville, 1880; died March 1, aged 89, of cerebral hemorrhage.

James J. Flynn, Missoula, Mont.; John A. Creighton Medical College, Omaha, 1906; member of the Medical Association of Montana; for many years Missoula County physician; served during World War I; on the staff of St. Patrick Hospital, where he died February 20, aged 62, of hypertensive cardiovascular disease.

Casper Hartman Foote, Annawan, Ill.; St. Louis University School of Medicine, 1905; instantly killed March 14, aged 70, when struck by a train.

William Tipton Forman, Grand Ledge, Mich.; Chicago Homeopathic Medical College, 1904; died March 11, aged 67, of heart disease and bronchial asthma.

James Henderson Fowler, Harrison, Ark.; Memphis (Tenn.) Hospital Medical College, 1907; member of the Arkansas Medical Society and past president and secretary of the Ninth Councilor District; past president of the Boone County Medical Society; died March 10, aged 69.

Saul Hyman Franks ♂ Cleveland; University of Pittsburgh School of Medicine, 1913; for many years associated with the city health department; served as resident physician at the Warrensville Chronic Hospital, Warrensville, Ohio; died February 24, aged 56, of heart disease.

William Frieder ♂ New York; Columbia University College of Physicians and Surgeons, New York, 1906; served as examining physician at the Governors Island selectee induction station; assistant surgeon at the Hospital for Ruptured and Crippled; died March 9, aged 60.

Hermion Aaron Gerbig, Independence, Kan.; Chicago College of Medicine and Surgery, 1908; member of the Kansas Medical Society; died February 28, aged 66, of coronary thrombosis.

Hugh Vincent Gillson, Paterson, N. J.; University of Maryland School of Medicine, Baltimore, 1914; member of the Medical Society of New Jersey; served overseas as a captain in the medical corps of the U. S. Army during World War I; chief medical director of the public schools; on the staff of St. Joseph's Hospital; died February 18, aged 55, of carcinoma.

Thomas Massey Gilmore, Union, Ore.; Omaha Medical College, 1901; served during World War I; died February 19, aged 68, of coronary thrombosis.

Paul Conde Graham, Columbus, Ind.; Medical College of Indiana, Indianapolis, 1903; member of the Indiana State Medical Association; served during World War I; died in the Methodist Hospital, Indianapolis, February 25, aged 64, following an operation for carcinoma.

Everett Edwin Gray ♂ Marysville, Calif.; Cooper Medical College, San Francisco, 1911; served during World War I; died in the Rideout Memorial Hospital February 6, aged 56, of coronary occlusion.

Adolph Greenstein ♂ New York; University and Bellevue Hospital Medical College, New York, 1909; specialist certified by the American Board of Otolaryngology; examining physician for local draft board number 27; attending otolaryngologist to the Beth David Hospital; died in the Paul Kimball Hospital, Lakewood, N. J., March 8, aged 58, of coronary thrombosis.

John Brightbill Groh ♂ Lebanon, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1899; at one time health officer; on the staff of the Lebanon Sanatorium; died February 7, aged 84, of myocarditis.

Leon William Hackett ♂ Washington, N. J.; Jefferson Medical College of Philadelphia, 1923; past president and secretary of the Warren County Medical Society; served during World War I; died March 11, aged 46, of coronary thrombosis and arteriosclerosis.

James Elbert Harris, New York; New York Homeopathic Medical College and Hospital, New York, 1896; served as a medical inspector and eye surgeon for the board of health; formerly on the staff of New York Ophthalmic Hospital; died March 9, aged 68.

Raymond Willard Hawkins ♂ Rochester, N. Y.; Johns Hopkins University School of Medicine, Baltimore, 1920; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; assistant otolaryngologist, Strong Memorial Hospital; attending otorhinolaryngologist at the Highland and Rochester General hospitals; died in Conesus March 30, aged 49, of coronary occlusion.

Victor Lamar Henton, Decatur, Miss.; Emory University School of Medicine, Atlanta, Ga., 1915; on the staff of the Newton Infirmary, Newton; died in a Meridian hospital March 18, aged 52, of carcinoma of the throat.

William B. Herýford, Maryville, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1886; died February 10, aged 81, of a ruptured meningeal artery of the brain.

Walter Hastings Jones, New York; New York Homeopathic Medical College, New York, 1886; died in the Bellevue Hospital March 10, aged 82.

James Alphonsus Kearney, Ossining, N. Y.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1919; member of the Medical Society of the State of New York; served overseas with the Canadian army during World War I; physician, Sing Sing Prison; on the staff of Ossining Hospital, where he died March 10, aged 53, of chronic cirrhosis of the liver.

Louis Lattman, Philadelphia; Temple University School of Medicine, Philadelphia, 1926; member of the Medical Society of the State Pennsylvania; died in a hospital at Miami, Fla., March 10, aged 45.

Charles Asbury Le Cates ♂ Tannersville, Pa.; Jefferson Medical College of Philadelphia, 1896; physician for the Monroe County Home, Kellersville; at one time on the staff of the Medico-Chirurgical Hospital, Philadelphia; died in the General Hospital of Monroe County, East Stroudsburg, March 8, aged 74.

Joseph Edward Lemire, Worcester, Mass.; College of Physicians and Surgeons, Boston, 1911; attending physician at the Worcester County jail; on the staff of St. Vincent Hospital; died March 15, aged 62, of cardiorenal disease.

Wilfred Arthur Major ♂ Chicago; Bennett Medical College, Chicago, 1914; on the staff of the Roseland Community Hospital, where he died March 13, aged 56, of pulmonary embolism.

William Murray Malone ♂ Los Altos, Calif.; Cooper Medical College, San Francisco, 1912; died in San Francisco February 17, aged 62.

George Emmons Marchand, Washington, D. C.; Kentucky School of Medicine, Louisville, 1891; served in the U. S. Navy during the Spanish-American War and World War I; retired from the government service in 1933; died in the Veterans Administration Facility March 7, aged 77, of hypertensive and arteriosclerotic heart disease.

Maxwell Comrie Montgomery, Rome, N. Y.; Syracuse University College of Medicine, 1905; member of the Medical Society of the State of New York; served during World War I; for many years on the staff of the Rome State School, where he had been assistant director; died February 27, aged 63, of multiple coronary infarction.

John Prather @ Scale, Ala.; University of Alabama School of Medicine, 1909; secretary of the Russell County Medical Society; served during World War I and later as a lieutenant colonel in the reserve corps of the U. S. Army; at one time on the staff of the Massillon State Hospital, Massillon, Ohio; died in the City Hospital, Columbus, Ga., February 13, aged 58.

Harley Arthur Sears @ Coldwater, Mich.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1921; specialist certified by the American Board of Psychiatry and Neurology, Inc.; medical superintendent of the Coldwater State Home and Training School; formerly assistant medical superintendent of the Kalamazoo State Hospital, Kalamazoo, where he had been a member of the staff for many years; died March 4, aged 46.

Ernest Eraine Shivers, Lexington, Texas; University of the South Medical Department, Sewanee, Tenn., 1901; member of the State Medical Association of Texas; formerly a druggist; died March 5, aged 62.

Francke Kefaver Slaton, Ardmore, Okla.; Kentucky University Medical Department, Louisville, 1906; died March 16, aged 60.

Shirley Robinson Snow, Rochester, N. Y.; College of Physicians and Surgeons, New York, 1889; member of the Medical Society of the State of New York; honorary surgeon on the staff of the Genesee Hospital; died in East Rochester March 8, aged 80, of cerebral accident.

Guy Fleming Spearman, Atlanta, Ga.; Atlanta College of Physicians and Surgeons, 1910; member of the Medical Association of Georgia; on the staffs of the Crawford W. Long Memorial Hospital, Georgia Baptist Hospital and St. Joseph Infirmary; died March 8, aged 63, of pneumonia.

Oliver Thoroman Sproul @ West Union, Ohio; College of Physicians and Surgeons, Baltimore, 1886; a charter member of the Adams County Medical Society, of which he was secretary from 1900 to 1943; a captain in the medical corps of the U. S. Army during World War I and later a captain in the medical reserve corps; for many years president of the board of education; president of the Adams County Building and Loan Association; died March 8, aged 81, of chronic myocarditis and bronchopneumonia.

James Martin Staughton, Covington, Ky.; Eclectic Medical Institute, Cincinnati, 1903; served as a first lieutenant in the medical corps of the U. S. Army during World War I; died March 4, aged 71, of heart disease.

Chauncey M. Stokes, Havana, Ill.; American Medical College, St. Louis, 1912; member of the Illinois State Medical Society; died March 1, aged 63, of angina pectoris.

Chester James Sturges, Minneapolis; State University of Iowa College of Medicine, Iowa City, 1922; private in Students' Army Training Corps at Iowa State University during World War I; captain, medical corps, Army of the United States, not on active duty; formerly on the staff of the Veterans Administration Facility, Bath, N. Y.; medical contact officer at the Veterans Administration Facility, where he died February 23, aged 47, of carcinoma of the liver and pancreas.

Frank August Tabor, Terre Haute, Ind.; Medical College of Indiana, Indianapolis, 1898; member of the Indiana State Medical Association; served during World War I; held important positions in the Veterans of Foreign Wars; on the staff of Union Hospital; died in the Veterans Administration Facility, Indianapolis, March 8, aged 71, of hemiplegia.

John Albert Thompson, Brookville, Ind.; Miami Medical College, Cincinnati, 1884; member of the American Laryngological, Rhinological and Otolological Society; fellow of the American College of Surgeons; professor emeritus of laryngology at the University of Cincinnati College of Medicine; for many years member on the staff of the Christ Hospital, Cincinnati, where he died March 1, aged 85, of coronary disease.

Adam Weaver @ Cumberland, Iowa; St. Louis College of Physicians and Surgeons, 1892; died February 26, aged 77, of myocardial failure.

William Jugartha West, Conway, Ark.; University of Louisville (Ky.) Medical Department, 1894; died March 16, aged 80.

Della Patterson Wetherby @ Wilkes-Barre, Pa.; Kansas Medical College, Topeka, 1896; formerly on the staff of the Mercy Hospital; died February 4, aged 78.

Gratian Philip Whitwham, Toledo, Ohio; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; served during World War I; died in the Veterans Administration Facility, Chillicothe, March 4, aged 63, of heart disease.

Louis Jacob Wolf, Portland, Ore.; Cooper Medical College, San Francisco, 1903; member of the Oregon State Medical Society; assistant health officer; medical director of the City Isolation Hospital; died March 22, aged 67, of coronary thrombosis.

Arthur C. Wood @ Adrian, Mich.; Detroit College of Medicine, 1894; on the staff of the Emma L. Bixby Hospital; died March 16, aged 71, of angina pectoris.

Leroy Hammond Woodruff, Tuscaloosa, Ala.; University of Alabama School of Medicine, 1913; member of the Medical Association of the State of Alabama; served overseas during World War I; assistant superintendent of the Partlow State School; died in the Cleveland Clinic Hospital, Cleveland, February 14, aged 56, of pulmonary embolism following a laparotomy.

Henry Rush Zeller, Akron, Ohio; Ohio Medical University, Columbus, 1898; died February 5, aged 75, of carcinoma.

DIED WHILE IN MILITARY SERVICE

Thomas Austin Barry, Boston; Tufts College Medical School, Boston, 1936; member of the Massachusetts Medical Society; diplomate of the National Board of Medical Examiners; served on the resident staffs of the Morrisania City, Harlem, and Doctors hospitals in New York and the Boston Lying-in Hospital; formerly pathologist on the staff of Margaret Hague Maternity Hospital, Jersey City; began active duty as a lieutenant (jg) in the medical corps, U. S. Naval Reserve, in June 1942; later promoted to lieutenant; died Aug. 4, 1943, aged 34, of malignant tertian malaria.

James Allen Hemphill, Riverton, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1937; served an internship at the Jersey City Hospital, Jersey City, and a residency at the Burlington County Hospital, Mount Holly, N. J.; began active duty as a first lieutenant in the medical corps of the Army of the United States on July 21, 1942; later promoted to captain; died in the North American theater April 10, aged 32, of a fractured skull.

Roderick Frederick MacDougal, Cedar Rapids, Iowa; Yale University School of Medicine, New Haven, Conn., 1935; member of the Iowa State Medical Society and the Central Association of Obstetricians and Gynecologists; diplomate of the National Board of Medical Examiners; served an internship and a residency in obstetrics and gynecology at the Strong Memorial and Rochester Municipal hospitals, Rochester, N. Y.; served a residency in obstetrics and gynecology at the University Hospitals, Iowa City; began active duty as a captain in the medical corps of the Army of the United States on Sept. 26, 1942; died suddenly in the European area February 24, aged 34.

Isham Sellers Moore Jr., Ozona, Texas; University of Arkansas School of Medicine, Little Rock, 1933; member of the State Medical Association of Texas; commissioned a first lieutenant in the medical reserve corps of the U. S. Army in 1941; later promoted to captain and major; died in the European area Oct. 21, 1943, aged 35.

Albert Daniel Neubert, Redlands, Calif.; University of Wisconsin Medical School, Madison, 1928; commissioned a captain in the medical corps, Army of the United States, on Sept. 11, 1942 and later promoted to major; died in the European area Oct. 29, 1943, aged 39, of acute cerebrospinal meningitis.

Correspondence

PRIORITY IN THE DISCOVERY OF FEVER THERAPY IN PSYCHOSIS

To the Editor:—In an editorial in *THE JOURNAL*, April 8, it is stated that priority for the use of malaria and relapsing fever in the treatment of dementia paralytica, according to Neymann (*Arch. Dermat. & Syph.* 48:52 [July] 1943), should belong to Rosenblum.

Enthusiasm over the beneficial effect of fever in psychoses was common among psychiatrists of the middle of the last century. Several papers on this subject, some of which were quoted by Neymann and Zakon, had appeared a decade before the communication of A. S. Rosenblum was published in 1877. It is true that Rosenblum inoculated a group of mental patients with relapsing fever, but he did not continue this mode of treatment and there was no fever therapy, as we know it today, until Wagner-Jauregg in 1919 published the results of the studies on the first patients with dementia paralytica, who had been treated two years previously with inoculation malaria.

The merit of Wagner-Jauregg was that he soon realized that the beneficial effect of fever was restricted to cases of dementia paralytica. For over twenty years he then focused all his efforts on this type of mental illness, using tuberculin, typhoid vaccines and even streptococci of erysipelas to produce fever.

Wagner-Jauregg was well aware of the work of Rosenblum. I have in my possession a manuscript by Wagner-Jauregg entitled "The History of Malaria Treatment of General Paralysis" which was written by him for a monograph dealing with the malaria therapy of neurosyphilis. For the benefit of the readers of *THE JOURNAL*, the paragraph follows which gives Wagner-Jauregg's version in this matter: "In the literature Rosenblum is usually credited with being the first who inoculated general paralytics for therapeutic purposes using febris recurrens and not malaria. The facts, however, are that Rosenblum has never inoculated his patients with the idea of treating their mental illness. What he did was to make available his mental patients—among whom were no general paralytics—to the bacteriologist Motschutkowski, who in Odessa in the year of 1876 studied the transmissibility of febris recurrens to human beings. Subsequently a few of these patients recovered from their psychoses, and Rosenblum reported this later under an assumed name (Oks, B.: *Arch. f. Psychiat.* 10:249, 1880). Rosenblum never continued these experiments."

WALTER L. BRUETSCH, M.D., Indianapolis.

To the Editor:—The editorial on "Priority on the Discovery of Fever Therapy in Psychosis" (*THE JOURNAL*, April 8) discusses an interesting historical subject and prompts me to present two references which were first called to my attention by the late Dr. Paul Eaton.

Thomas Watson (*Lectures on the Principles and Practice of Physic*, Philadelphia, 1858) devotes a lengthy paragraph on page 488 to a discussion of previous notions of the salutiferous effects of an attack of ague, in which he calls attention to the 57th Aphorism of the 4th section of Hippocrates, "Fever supervening in a patient suffering from convulsions or tetanus, removes the disease." He also mentions a specific contemporaneous instance of the deliberate exposure of a patient to malaria in an effort to treat epilepsy.

The topic was previously discussed by F. G. Boisseau (*Physiological Pyretology; or a Treatise on Fevers: etc*, 1st American from the 4th French edition, translated by J. R. Knox, Phila-

delphia, 1832), who begins his section on the Treatment of Intermittent Fevers, and Especially of Benign Intermittent Fever, on page 402, with the following paragraphs:

The first question under the head of treatment of these fevers is whether it is proper to attempt their cure. . . . Boerhaave was pleased to say that intermittent fever disposed to longevity. The fact that in a very limited number of cases, melancholy, mania, gout, epilepsy and palsy were observed to cease after its appearance, has given rise to the belief that this fever might sometimes be beneficial in its effects.

If it be true that the intermittent fever is so beneficial to maniacs, epileptics, the gouty and paralytic, I know not why they should not be sent to the Pontine Marshes or to Batavia, instead of prescribing the pure air of the Pyrenees or of the Gold Coast [evidently Côte d'Or]. Let those, at least, who are free from these diseases get rid of the intermittent fever as soon as possible; and let it suffice to respect it in maniacs, epileptics, and paralytics, and even the gouty, if they prefer the fever to the gout.

MARK F. BOYD, Tallahassee, Fla.

To the Editor:—I have read with great interest the editorial on "Priority in the Discovery of Fever Therapy in Psychosis," April 8. I feel, however, that it contains one statement which should be corrected in the interest of historical accuracy. The editorial closes with the sentence "Possibly Wagner-Jauregg was not aware of the work of Dr. Rosenblum because of its publication in an obscure paper in a language little read outside the country of its origin." Wagner-Jauregg in his paper "Ueber die Einwirkung fieberhafter Erkrankungen auf Psychosen" (*Jahrb. f. Psychiat.* 7:1887) mentions Rosenblum's work: "Oks, who reports the experience of Rosenblum, says in a footnote that of the 22 cases or recurrent fever reported by Rosenblum 12 were produced by inoculation. . . . This may be the first successful trial of artificially induced infectious diseases for therapeutic purposes in psychiatry." In the same paper Wagner-Jauregg mentions the experiments of his teacher Leidesdorff, published in the *Anzeiger der K. K. Gesellschaft der Aerzte in Wien*, 1875, who used fever produced by blood transfusion in the treatment of psychoses. Wagner-Jauregg mentioned Rosenblum's work again in a lecture on "Psychiatrische Heilbestrebungen," read before the Gesellschaft der Aerzte in Wien on Feb. 22, 1895 and published in the *Wiener klinische Wochenschrift* in 1895: "The first to produce an infectious disease in psychoses was Rosenblum in Odessa."

These quotations show that Wagner-Jauregg not only knew of Rosenblum's work but gave him full credit for his priority.

WALTER FLEISCHMANN, M.D., Baltimore.

FURUNCULOSIS

To the Editor:—In *THE JOURNAL*, April 22, there is an article by Dr. Philip B. Price entitled "Cause and Treatment of Furunculosis." Dr. Price stresses the resistance of resident skin bacteria to the usual bactericides. Based on the conception that furunculosis and the accompanying regional contamination are local phenomena, he advocates the use of a solution of ethyl alcohol exactly 70 per cent by weight by gentle gauze friction over the involved area for a period of twenty minutes. Excellent and rapid results were noted.

After the usual etiologic factors in furunculosis have been excluded, two contributory causes are frequently overlooked. The first is a transient hyperglycemia and the second a lowered resistance to *Staphylococcus aureus*, the common infecting agent in furunculosis.

In all cases of stubborn and recurrent furunculosis a diminished carbohydrate intake is indicated. I wish especially to stress the quick, dramatic and excellent end results which can be obtained by the subcutaneous use of staphylococcus toxin or toxoid to increase the resistance of a patient to furunculosis. Dr. Franklin A. Stevens and I studied thirty-one strains of

hemolytic *Staphylococcus aureus* and we found that the toxin production in all were apparently identical (*Proc. Soc. Exper. Biol. & Med.* 24:592 [March] 1927). Toxin was prepared at the Presbyterian Hospital, New York, and it was used for therapeutic purposes. As is well known, *Staphylococcus aureus* has an endotoxin and an exotoxin. The refined exotoxin is injected into the human host in graduated doses. The response is increased circulating antitoxin. It is this antitoxin and possibly some substance produced by the endotoxin which attenuate or destroy furuncles and help to prevent their recurrence.

My experience with the use of *staphylococcus* toxin or toxoid extends over a period of seventeen years. The clinical results have been extremely satisfactory where other methods have failed. It is my impression that the profession has not taken full advantage of this potent biologic agent. Toxoid is easily obtained in the open market.

LOUIS CARP, M.D., New York.

DIETARY DEFICIENCY AND POLIOMYELITIS

To the Editor:—Permit us to point out an error in your editorial comment on "Dietary Deficiency and Poliomyelitis" (*THE JOURNAL*, April 1, p. 986). In the paragraph dealing with the mouse studies of Claire Foster and her associates (*J. Exper. Med.* 79:221 [Feb.] 1944) you refer to the thiamine content of the diets in milligrams—10 mg. and 100 mg. per hundred grams of diet—whereas the original paper specified 10 and 100 micrograms per hundred grams of food.

We should like also to emphasize the fact that thiamine deficiencies as severe as those employed in the various virus studies do not result in low phagocytic activity. The work in our laboratory (as reported in the *Journal of Immunology* 47:493 [Dec.] 1943) quite consistently showed low phagocytic activity with moderate vitamin deficiency but a rise to normal levels again when the inadequacy became severe and the animal was near death. This type of severe deficiency is obtained within four weeks when weanling white rats are fed synthetic diets containing 0 to 20 micrograms of thiamine per hundred grams of food. It was at the 40 to 60 microgram level that we obtained greatest suppression of phagocytic function. Therefore it may be that properly planned studies might still show protection against virus infections to be as much influenced by moderate vitamin deficiency as seems to be the case with bacterial invasions.

CLARENCE A. MILLS, Ph.D., M.D.

ESTHER COTTINGHAM, B.S., M.T.

University of Cincinnati, Cincinnati.

ACCURACY IN MEASURING TEMPERATURE

To the Editor:—I thought your editorial in the April 8 issue on clinical thermometry most timely. I have tried for more than forty years to combat that sloppy attitude toward the thermometer.

Now I wonder if you couldn't go a step further and call attention to what I regard as an equally culpable error; that of failing to take into consideration the normal diurnal variation of human temperature. I find nurses, even in first class hospitals, reporting a temperature of 98.6 F. taken at 6 or 8 a. m. as normal, while any one who has given the matter close attention knows that it is the equivalent of 99.8 F. for the late afternoon or early evening.

I have known this to lead to serious consequences, as the patient, assuming that his temperature was normal, went out and got a serious and, in 2 instances, a fatal relapse.

If this is a pedantic notion of mine, just pass it over.

O. M. GILBERT, M.D., Boulder, Colo.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in *THE JOURNAL*, May 13, page 169.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written*. Various large cities, May 8. *Oral*. Chicago, June 17. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral*. Chicago, June 8-10. Final date for filing application is May 20. *Written*. Various centers Oct. 16. Candidates in military service may take examination at their place of duty. Final date for filing application is August 15. Asst. Sec., Dr. W. A. Werrell, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY. Chicago, June 5. Sec., Dr. Paul C. Bucy, 912 S. Wood St., Chicago.

AMERICAN BOARD OF OBSTETRICS & GYNECOLOGY. *Oral*. Part II. Pittsburgh, June 7-13. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: New York, June 2-5. Chicago, Oct. 5-7. Sec., Dr. S. Judd Beach, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Oral and Written*. Part I. Chicago, New Orleans, New York and San Francisco, October. Final date for filing application is August 1. Sec., Dr. G. A. Caldwell, 3503 Prytania St., New Orleans.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral*. New York City, June 1-4. Chicago, Oct. 4-7. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City, Ia.

AMERICAN BOARD OF PATHOLOGY: *Oral and Written*. Chicago, June 7-8. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit.

AMERICAN BOARD OF PEDIATRICS: *Written*. Locally, Sept. 22. *Oral*. St. Louis, Nov. 8-9. Final date for filing application is Aug. 15. Sec., Dr. C. A. Aldrich, 115½ First Ave. S.W., Rochester, Minn.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Naturopathic Practice Acts: Practice of Naturopathy by Unlicensed Person.—A complaint was filed charging Marjorie Wheaton with practicing naturopathy in Connecticut without a license. She practiced naturopathy without a license according to the allegations of the first count of the complaint by administering therapeutic treatments to one Rome on a stated date and according to the second count by administering treatments to another individual. The jury returned a verdict of guilty as to the first count and not guilty on the second count. The defendant moved to set aside the verdict of guilty on the first count as contrary to law and inconsistent with the finding of not guilty on the second count. The motion was denied, and she appealed to the Supreme Court of Errors of Connecticut.

General Statutes, Connecticut, section 2775, said the appellate court, prohibits an unlicensed person from practicing or attempting to practice naturopathy. Section 991e, Cumulative Supplement, 1939, defines the practice of naturopathy as:

the practice of the psychological, mechanical and material sciences of healing as follows: The psychological sciences, such as psychotherapy; the mechanical sciences, such as mechanotherapy, articular manipulation, corrective and orthopedic gymnastics, neurotherapy, physiotherapy, hydrotherapy, electrotherapy, thermotherapy, phototherapy, chromotherapy, vibrotherapy, concussion and pneumotherapy, and the material sciences, such as dietetics, and external applications; but shall not mean internal medication or the administering of any substance simulating medicine or the form of medicine, except dehydrated foods.

The expression in both statutes, continued the court, is "practice." Complaint of a single therapeutic treatment by the means specified, standing alone, would not properly charge a violation of the statute. In this case the jury could reasonably have

found from the evidence before it that affixed to the house in which the defendant allegedly had an office was a sign which read "Institute of Electro-Hydro-Therapeutic Treatments, Scientific Massage." In a window on the first floor of that house was a sign which read "Wheaton Health Institute, Pine Needle Baths, Bakes, Massage." A sign on the front door read "Walk In." Inside the door was a large room in which were a desk and telephone. Beyond was a dressing room and beyond this was a room with an examination table and with charts of the human body on the wall. Rome, the patient who it was alleged in the first count of the complaint had been treated by the defendant, went to the alleged office of the defendant on a stated date, feigning a limp. He asked the defendant if she treated people "the same as a chiropractor does," to which she answered "Yes, be seated." He did not complain of an ailment nor did the defendant ask him if he had one. On her instructions Rome stripped to the waist and lay down on an examination table. The defendant flexed his legs by bending the knees and ankles and then held the legs together and said "That's it." Rome asked her what she meant and she declared that one leg was two inches shorter than the other and that this condition could cause kidney, liver and bladder troubles. She then had him lie prone and applied a heat lamp to his back. Following this she applied an ice-cold towel to it, massaged it with alcohol and ran an electric tube up and down his spine. After collecting \$3 from him she instructed him to return in three days and that if he suffered pain in the interim to take aspirin. Rome returned later as instructed but apparently at that time was not subjected to any further treatment. Rome apparently was in good health and was suffering from no ailments at the times he consulted the defendant. The main contention of the defendant on appeal was that these facts showed but a single treatment, that this was not for therapeutic purposes and that in any event it was not enough to warrant a verdict of practicing naturopathy, relying on *State v. Faatz*, 83 Conn. 300, 76 A. 295, in which the Supreme Court of Errors of Connecticut held that one cannot be said to be engaged in the practice of dentistry "until he embarks in it, until he holds himself out as a dentist, either by a series of continuous acts, covert or open, or by advertising himself in some way as a dentist." In this case, the court continued, the jury could have found that the house in which Rome called on the defendant was her home, that the signs on it were her signs and that they were designed to invite the public to enter for the purpose of receiving therapeutic treatments; and that the defendant in fact administered such treatments.

A claim of the defendant that the particular treatments she administered may be given to a person with no ailment and were not therapeutic in character because the patient was admittedly a healthy person the court did not regard as tenable, since the defendant held herself out to give therapeutic treatments and purported to administer them. The court likewise rejected a claim of the defendant that the state had failed to allege specifically that she held herself out as a naturopath so as to bring her acts within the definition of the practice of naturopathy set out in the statute. The allegation of practice in the first count, said the court, was broad enough to admit evidence of advertising. It was not necessary to allege it specifically, and there was in addition evidence of treatments.

At the conclusion of the evidence the jury asked the trial court whether "the administering of electricity, water, heat, vibration and articular manipulation by themselves constituted Naturopathy or is there a doubt?" The defendant claimed that the answer given to this question by the trial court to the jury was not responsive. The trial court, said the appellate court, "answered the question in substance by stating that to engage in naturopathy one must hold oneself out as a naturopath either by a series of acts or by advertising in some way as a naturopath and that the question for them was whether the accused held herself out to the public as a duly qualified naturopath embarked in the profession." The trial court then repeated the

definition of the various therapeutics named in the statute in reference to the use of electricity, water, heat, vibration and manipulation. This instruction, said the appellate court, was responsive and correct and the allegation of practice was properly supported by evidence of advertising and the trial court was not in error in including this in its definition of the crime charged.

Accordingly the judgment of conviction was affirmed.—*State v. Wheaton*, 36 A. (2d) 118 (Conn., 1944).

Society Proceedings

COMING MEETINGS

- American Medical Association, Chicago, June 12-16. Dr. Olin West, 535 N. Dearborn St., Chicago 10, Secretary.
- American Association for the Surgery of Trauma, Chicago, June 9-10. Dr. Gordon M. Morrison, 520 Commonwealth Ave., Boston, Secretary.
- American Association of Genito-Urinary Surgeons, Stockbridge, Mass., June 8-10. Dr. Charles C. Higgins, 2020 E. 93d St., Cleveland, Secretary.
- American Association of Plastic Surgeons, Philadelphia, May 25-27. Dr. Frederick A. Figi, 102 Second Ave., S.W., Rochester, Minn., Secretary.
- American Broncho-Esophagological Association, New York, June 6. Dr. Paul H. Holinger, 700 N. Michigan Ave., Chicago, Secretary.
- American College of Allergists, Chicago, June 10-11. Dr. Fred W. Wittich, 401 LaSalle Medical Bldg., Minneapolis 2, Secretary.
- American College of Chest Physicians, Chicago, June 10-12. Dr. Paul H. Holinger, 500 N. Dearborn St., Chicago, Secretary.
- American College of Radiology, Chicago, June 14. Mr. Mac F. Cahal, 540 N. Michigan Ave., Chicago, Secretary.
- American Diabetes Association, Chicago, June 11. Dr. Cecil Striker, 630 Vine St., Cincinnati 2, Secretary.
- American Federation for Clinical Research, Chicago, June 12-13. Dr. Thomas M. Durant, 3401 N. Broad St., Philadelphia 40, Secretary.
- American Gastro-Enterological Association, Chicago, June 12-13. Dr. J. Arnold Bargen, 102 Second Ave. S.W., Rochester, Minn., Secretary.
- American Gynecological Society, Hershey, Penna., June 19-21. Dr. Howard C. Taylor Jr., 842 Park Ave., New York 21, Secretary.
- American Laryngological Association, New York, June 7-8. Dr. Arthur W. Proetz, 3720 Washington Blvd., St. Louis, 8, Secretary.
- American Laryngological, Rhinological and Otolological Society, New York, June 9-10. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.
- American Medical Women's Association, Chicago, June 10-11. Dr. Carroll L. Birch, 2045 Sedgwick St., Chicago, Secretary.
- American Ophthalmological Society, Hot Springs, Va., May 29-31. Dr. Walter S. Atkinson, 129 Clinton St., Watertown, N. Y., Secretary.
- American Physicians' Art Association, Chicago, June 12-16. Dr. F. H. Redewill, 536 Flood Bldg., San Francisco, Secretary.
- American Proctologic Society, Chicago, June 11-13. Dr. W. H. Daniel, 1930 Wilshire Blvd., Los Angeles 5, Secretary.
- American Therapeutic Society, Chicago, June 10. Dr. Oscar B. Hunter, 1835 I St. N.W., Washington 6, D. C., Secretary.
- American Urological Association, St. Louis, June 19-22. Dr. Thomas D. Moore, 899 Madison Ave., Memphis, 3, Tenn., Secretary.
- Association for Research in Ophthalmology, Chicago, June 13. Dr. B. F. Payne, School of Aviation Medicine, Randolph Field, Texas, Secretary.
- Association for the Study of Internal Secretions, Chicago, June 12-13. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City, Secretary.
- Maine Medical Association, Rockland, June 25-27. Dr. Frederick R. Carter, 142 High Street, Portland 3, Secretary.
- Massachusetts Medical Society, Boston, May 23-24. Dr. Michael A. Tighe, 8 Fenway, Boston 15, Secretary.
- Rhode Island Medical Society, Providence, May 24-25. Dr. William P. Buffum, 122 Waterman St., Providence 3, Secretary.
- Society for Investigative Dermatology, Chicago, June 13. Dr. S. W. Becker, 55 E. Washington St., Chicago, Secretary.
- South Dakota State Medical Association, Huron, May 21-23. Dr. Roland G. Mayer, 22½ S. Main St., Aberdeen, Secretary.
- Wyoming State Medical Society, Casper, May 28. Dr. M. C. Keith, Capitol Building, Cheyenne, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1934 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

207:141-280 (Feb.) 1944

- Osteosclerosis, Myelofibrosis and Leukemia. J. Churg and M. Wachstein.—p. 141.
- Diagnostic Physicochemical Blood Tests in Sickle Cell Anemia. T. Winsor and G. E. Burch.—p. 152.
- Hand-Schüller-Christian's Syndrome and "Eosinophilic or Solitary Granuloma of Bone." O. Versiani, J. M. Figueiró and M. A. Junqueira.—p. 161.
- *Sulfonamide Inhibiting Action of Procaine. O. L. Peterson and M. Finland, with technical assistance of Mildred W. Barnes and Clare Wilcox.—p. 166.
- *Toxicity of Sulfadiazine: Observations on 1,357 Cases. N. Plummer and C. Wheeler.—p. 175.
- Gargoylism: Review of Literature with Report of 2 Cases. L. A. Lurie and S. Levy.—p. 184.
- Surgical Removal of Adrenal Adenoma with Relief of Cushing Syndrome. S. F. Wilhelm and S. Gross.—p. 196.
- Heart Disease in Selective Service Examinees: Study of 20,000 Examinees in Pacific Northwest. M. Wilburne and E. M. Ceccolini.—p. 204.
- Clinical and Biochemical Study of Cow's Milk and Honey as an Essentially Exclusive Diet for Adult Humans. M. H. Haydak, A. E. Vivino, J. J. Boehrer, O. Björndahl and L. S. Palmer.—p. 209.
- Development of Pulmonary Tuberculosis in Congenital Heart Disease. O. Auerbach and Marguerite G. Stemmerman.—p. 219.
- Case of Histoplasmosis in Infant, with Autopsy. H. G. Schlumberger and A. C. Service.—p. 230.
- Relation of Vitamin B to Toxicity of Promin as Tested by Self-Selection Method. G. M. Higgins.—p. 239.
- Studies of B Vitamins in Human Subject: VII. Blood Pyruvate and Lactate-Pyruvate Ratio Following Ingestion of Glucose in Experimental Deficiency. D. Klein and K. O'Shea Elsom.—p. 247.

Sulfonamide Inhibiting Action of Procaine.—Peterson and Finland point out that the methods for determining sulfanilamide depend on diazotization and the coupling of the resulting diazo compound to produce an azo dye which can be easily estimated by colorimetric comparison. The reaction depends on the presence of an amino group substituted in the benzene ring and can therefore be used for the estimation of any derivative of sulfanilamide or for any related aromatic compound in which the amino group is free or can be freed by hydrolysis. Recognition of this fact has served to explain inconsistencies in the determination of sulfonamide drugs in body fluids. Procaine, which is the local anesthetic most commonly employed in obtaining such body fluids, is β -diethylaminoethyl-p-aminobenzoate and thus has a free aryl amine which may enter into this reaction. Procaine hydrochloride employed in local anesthesia may inhibit the action of sulfonamides in human blood. The authors present case reports illustrating the local sulfonamide inhibiting action of procaine. They find that procaine hydrochloride in amounts ordinarily employed for local anesthesia may be absorbed into the circulation in sufficient concentration to exert a definite inhibiting effect on the sulfonamides that may be present in the blood. Infection introduced into an area which has been infiltrated with procaine may become established locally in spite of the continuous presence in the body of bacteriostatic concentrations of sulfonamide drugs. It is desirable to use local anesthetic drugs other than paraaminobenzoic acid derivatives for infiltration when performing exploratory punctures of potentially infected areas. Procaine, or similar anesthetics of the paraaminobenzoic acid series, should also be avoided in extensive operative procedures on patients having severe infections in which rapid and effective action of sulfonamide drugs is essential.

Toxicity of Sulfadiazine.—Plummer and Wheeler analyze the toxic reactions that occurred in 1,357 hospital patients treated with sulfadiazine orally or with sodium sulfadiazine intravenously alone or in combination with sulfadiazine orally.

There was 1 fatality, that of a patient with thrombocytopenic purpura, which was attributed to sulfadiazine. Eight per cent of 705 patients who received 6 Gm. of sulfadiazine daily for at least two days and not more than fourteen days showed evidences of toxicity. The renal reaction was the most frequent single toxic manifestation. With intravenous sodium sulfadiazine the incidence of renal reactions was almost doubled, and thereby the total incidence of reactions was raised. The effect of previous use of therapy with sulfonamide compounds on toxicity was observed in 87 patients, and in them there was a slightly increased incidence of reactions, attributable to a slight increase in drug rash, drug fever and leukopenia. The renal complications comprised more than half of the toxic reactions in the entire series. The total incidence of toxic reactions from sulfadiazine can be reduced to approximately 4 per cent by proper fluid intake together with appropriate alkali therapy. This study indicates a decided superiority of sulfadiazine over the other sulfonamide compounds on the basis of a low degree of clinical toxicity.

American J. Obstetrics and Gynecology, St. Louis

47:149-296 (Feb.) 1944

- *Development of Early Human Ovum, with Special Reference to Trophoblast of Preovulatory Stage: Description of 7 Normal and 5 Pathologic Human Ova. A. T. Hertig and J. Rock.—p. 149.
- Blood Vessels of Myomatous Uterus. R. L. Faulkner.—p. 185.
- Fallacies in Soft Tissue Placentography. C. Moir.—p. 198.
- *Surgical Problems Arising During Pregnancy. C. G. Child III and R. G. Douglas.—p. 213.
- Carcinoma of Cervix Coincident with Pregnancy. C. R. Maino and R. D. Mussey.—p. 229.
- Pelvic Inflammatory Disease of Specific Origin: Comparative Study of Two Series of Cases from Charity Hospital of Louisiana at New Orleans, with Special Reference to Recent Therapeutic Improvements and Their Effect on Mortality. H. E. Miller.—p. 245.
- Iodine Vapor Technic versus Carbol-fuchsin Stain for Vaginal Smears. R. S. Siddal.—p. 260.
- Experience with Six Hour Rat Test for Pregnancy. S. Kaminester.—p. 265.
- Volvulus of Cecum as Postpartum Complication. D. E. Sheldon.—p. 268.
- Cure by Penicillin Following Repeatedly Unsuccessful Sulfonamide Therapy in Pregnant Woman with Gonorrhea. H. Strauss.—p. 271.
- Vulvar Edema Complicating Delivery. N. Block.—p. 273.
- Meigs' Syndrome. E. Kelemen.—p. 275.
- Chiari's Syndrome. J. C. Potter.—p. 276.

Development of Early Human Ovum.—Hertig and Rock describe the early morphologic development of the normal human trophoblast and compare it with corresponding phases in the development of abnormal ova. The material used consisted of twelve fertilized ova, seven normal and five abnormal, discovered in surgically removed uteri. The series of five previllous and two villous normal human ova, ranging from 7.5 to 16.5 days in developmental age, shows that the human blastocyst implants on the posterior wall probably during the late sixth or the early seventh day of its development on endometrium that may range from the eighteenth to the twenty-third day of its development. There are no precise data on the time of implantation, since the youngest specimen, and therefore the most critical one with respect to this process, is already implanted. The figures given (late sixth or early seventh day) are deduced on the basis of this youngest specimen. Even younger ova must be secured in order to determine the actual time of implantation. Trophoblast proliferates at the site of implantation which, at first, consists of solid cytotrophoblast and syncytiotrophoblast. The latter becomes vacuolated on the eighth day, to develop lacunae for the reception of maternal blood on about the eleventh day. The chorionic villi begin to form as cytotrophoblastic masses on the twelfth to thirteenth day and grow peripherally along the syncytiotrophoblastic framework, ultimately coalescing peripherally to displace the syncytiotrophoblast, except the portion lining the intervillous space. Remnants of the desquamated syncytiotrophoblast are encountered in the placental site as giant cells. A series of five abnormal previllous ova, the developmental ages of which range from approximately eleven to fourteen days but which are difficult to interpret accurately because of their abnormality, shows a variety of conditions, ranging from shallow implantation of an otherwise normal ovum through extreme hypoplasia of the trophoblast to complete absence of the embryonic mass. The pathologic ova were all found on the anterior wall of the uterus.

Surgical Problems During Pregnancy.—Child and Douglas report that among 40,000 pregnant women there were 120, or 0.3 per cent, who presented surgical or gynecologic problems during the course of their gestation. Pregnant women tolerate even major surgical procedures fully as well as the nonpregnant. When the surgical disease, however, becomes complicated by peritonitis, the outlook is unfavorable and the maternal and fetal mortality high. Ovarian tumors complicating pregnancy may be removed with relative impunity provided operation can be postponed until after the first trimester. Myomectomy should not be performed during pregnancy except on urgent indications. An exploratory celiotomy for suspected ectopic pregnancy may be performed with relatively little danger of interrupting a normal intrauterine pregnancy should the preoperative diagnosis fail to be substantiated.

American Journal of Public Health, New York

34:101-214 (Feb.) 1944

- Health Is Social Security. H. Folks.—p. 101.
Present Status of Health Insurance in United States. N. Sinai.—p. 107.
From Social Security to Public Health in Chile. H. Romero.—p. 112.
Proposed Canadian National Health Bill. J. J. Heagerty.—p. 117.
Evolving Pattern of Tomorrow's Health: Future of Public Health in Western Hemisphere. F. Hurtado.—p. 123.
Nationwide Victory Corps—Physical Fitness Dental Program. J. A. Salzmänn and L. R. Kramer.—p. 127.
Postwar Implications of Fluorine and Dental Health: Epidemiological Aspects. H. T. Dean.—p. 133.
Postwar Implications of Fluorine and Dental Health: Problem as It Relates to Water Works Engineer. R. J. Faust.—p. 144.
Meningococcal Carrier Studies. J. J. Phair, E. B. Schoenbach and Charlotte M. Root.—p. 148.
Meeting the Public Health Engineering Problems of Army Overseas. W. A. Hardenbergh.—p. 155.
Present Status of Gonorrhea Control. N. A. Nelson.—p. 159.
Plasma Reserves for Civilian Defense, Their Distribution, Control, Preparation and Clinical Use: with Special Reference to Treatment of Infectious Diseases. J. B. Alsever.—p. 165.
blems in Population Estimation. E. Sibley.—p. 174.

Archives of Dermatology and Syphilology, Chicago

49:91-156 (Feb.) 1944

- Dermatology in an Army Station Hospital. H. W. Woolhandler.—p. 91.
*Blood Vitamin A and Cutaneous Diseases. T. Cornbleet, H. Popper and F. Steigmann.—p. 103.
Ringworm of Scalp: VI. Successful Use of Roentgen Rays to Epilate Local Areas of Infection. G. M. Lewis and Mary E. Hopper.—p. 107.
Primary Syphilis Treated by Twenty-Six Week Course of Mapharsen and Bismuth: Acute Basilar Meningitis with Neuroretinitis Developing During Treatment. G. A. DeOreo.—p. 109.
Association of Lupus Erythematosus and Thyrotoxicosis in Brother and Sister. E. P. Zeisler and S. M. Bluefarb.—p. 111.
Pemphigus Conjunctivae with Scarring of Skin: Report of 3 Additional Cases. W. F. Lever.—p. 113.
Balanitis Xerotica Obliterans: Report of Case. W. Leifer.—p. 118.
Epidemiology of Tinea Capitis: I. Study of Tinea Capitis in Dispensary. T. R. Benedek and I. M. Felsher.—p. 120.
Cutaneous Autosensitization: Role of Staphylococci in Chronic Eczema of Hands. H. H. Hopkins and E. L. Burky.—p. 124.
Chlorophyll Ointment in Treatment of Dermatophytosis of Feet and Similar Lesions. G. I. Wallace, J. K. Day and H. E. Moorman.—p. 128.
*Clinical Effects of Paraaminobenzoic Acid in Vitiligo. L. G. Beinbauer.—p. 132.

Blood Vitamin A and Cutaneous Diseases.—Cornbleet and his collaborators investigated the vitamin A and carotenoid levels in the plasma of 55 patients with various dermatologic diseases. They found that except for a few patients there were no characteristic deviations from the levels of hospital controls. One patient with Devergie's disease (pityriasis rubra) had a rather low level of vitamin A in the blood but a normal level of carotenoids; 1 patient with Darier's disease (keratosis follicularis) had a normal blood level of vitamin A. Two patients with disseminated lupus erythematosus showed rather low levels of vitamin A in the blood, but it was felt that this reflected the general depression of bodily functions in this disorder.

Paraaminobenzoic Acid in Vitiligo.—It has been claimed that paraaminobenzoic acid restores pigmentation and also causes depigmentation. Beinbauer found that vitiligo remained unaffected in 41 patients treated with paraaminobenzoic acid. Repigmentation was not noted in 14 patients with achromotrichia given paraaminobenzoic acid. This treatment was only partially successful in 1 case of achromotrichia associated with

vitiligo. Failure was recorded in the treatment of 11 patients with achromotrichia accompanying alopecia areata. The administration of paraaminobenzoic acid failed to cause depigmentation or to prevent lentiginos in 6 cases.

Archives of Ophthalmology, Chicago

31:129-190 (Feb.) 1944

- *New Aid in Removal of Foreign Bodies of Cornea: Topical Application of Silver Nitrate. D. F. Gillette.—p. 129.
Word of Caution in Use of Pentothal Sodium in Ophthalmic Surgery. H. F. Falls.—p. 134.
Congenital Opacities of Cornea. F. H. Theodore.—p. 138.
Juvenile Macular Exudative Choroiditis: Juvenile Disciform Degeneration of Macula (Junius). F. H. Adler and H. Scarlett.—p. 144.
Experimental Studies on Fatigue of Accommodation: I. Plan of Research and Observations on Recession of Near Point of Accommodation Following a Period of Interpolated Work on Ophthalmic Ergograph. C. Berens and S. B. Sells.—p. 148.
Ophthalmic Requirements of Military Services: Changes from Feb. 1, 1943 to Jan. 1, 1944. C. A. Bahn.—p. 160.
Penicillin in Treatment of Gonorrheal Conjunctivitis: Report of Case. W. P. Griffey.—p. 162.
Comparison of Ishihara and American Optical Company Series of Pseudoisochromatic Plates. R. H. Harris.—p. 163.
Penicillin and Gramicidin as Ocular Chemotherapeutic Agents. W. W. Wong.—p. 165.

Removal of Foreign Bodies from Cornea: Topical Application of Silver Nitrate.—Gillette's method utilizes the chemicophysical reaction produced by topical application of a 1 to 3 per cent solution of silver nitrate. The solution is applied by a small thread of cotton spun on the sharpened end of a round wooden toothpick. The cotton is cut off clean with sterile scissors so as to remove any stray fibers that might spread the solution over too large an area of the cornea. The reaction is a faint gray swelling of the superficial epithelium which elevates the foreign body slightly above the level of the surrounding epithelium. This swelling appears to be caused by local softening and edema of the tissue. The injured eye is anesthetized and carefully inspected. The conjunctival sac is irrigated, and when necessary a drop of sterile 2 per cent solution of fluorescein sodium is used to map an abrasion of the cornea or to outline the foreign body. The 1 per cent solution of silver nitrate is then applied to the foreign body. The reaction which develops in one minute is sufficient. Removal of the foreign body is then attempted. The topical application of silver nitrate before removal of foreign bodies from the cornea is of value because (a) it facilitates removal of the foreign body, burn and stain from the corneal epithelium, (b) it causes a minimum amount of trauma and (c) it is economical, for it conserves time and function. The earlier the patient is treated the more successful is the method. The method is applicable to all foreign particles.

Archives of Pathology, Chicago

37:83-160 (Feb.) 1944

- Mechanism of Isoimmunization by Rh Factor of Red Blood Cells: Standardization of Anti Rh Serums. P. Levine.—p. 83.
Genesis of Encephalopathy Due to Arsphenamine (Central Vasoparalysis Due to Arsphenamine). I. M. Scheinker.—p. 91.
*Eosinophilic Granuloma of Bone: Condition Affecting One, Several or Many Bones, But Apparently Limited to Skeleton and Representing Mildest Clinical Expression of Peculiar Inflammatory Histiocytosis also Underlying Letterer-Siwe Disease and Schüller-Christian Disease. H. L. Jaffe and L. Lichtenstein.—p. 99.
Nature and Occurrence of Cavum Septi Pellucidi. O. Swenson.—p. 119.
Renal Injury and Lymphatic Atrophy: Lymphopenia and Atrophy of Lymphatic Tissue Associated with Acute Renal Insufficiency in Dogs. R. L. Holman.—p. 124.
Genetic Analysis of Induction of Tumors by Methylcholanthrene: VII. Primary Carcinoma of Liver Following Subcutaneous Injection of Methylcholanthrene in Mice. L. C. Stroug.—p. 131.
Fulminating Meningococcal Infection with Bilateral Massive Adrenal Hemorrhage (Waterhouse-Friderichsen Syndrome): with Special Reference to Pathology, Medicolegal Aspects and the Incidence in Adults. H. S. Martland.—p. 147.
Eosinophilic Granuloma of Bone.—According to Jaffe and Lichtenstein eosinophilic granuloma of bone, Letterer-Siwe disease and Schüller-Christian disease may be considered different clinicoanatomic expressions of the same basic disorder. This disorder apparently presents a peculiar inflammatory reaction to some as yet unknown agent of infection, and its individual lesions are characterized by the presence of large numbers of histiocytes. In eosinophilic granuloma of bone the lesions seem to develop only in the skeleton and often only in a single bone and are given a distinctive cytologic imprint by the abundance

of eosinophils intermingled with the histiocytes. The lesions do not tend to become scarified, collagenized and lipidized, heal readily after simple curettage without supplementary roentgen irradiation and may indeed heal by resolution without any therapeutic intervention whatever. In Letterer-Siwe disease the histiocytic lesions are widely distributed through the soft tissues and the skeleton, the marrow sometimes being extensively affected even when there are few actually destructive lesions in the bones. With the presence of widespread destructive lesions in the bones of the skull, Letterer-Siwe disease may come to present the complete Christian triad of calvarial defects, diabetes insipidus and exophthalmos. Though the lesions in the soft tissues in cases of Letterer-Siwe disease do not show infiltration by eosinophils, the destructive lesions of bones do show it, especially early in the evolution. The granulation tissue in such destructive skeletal lesions of Letterer-Siwe disease is indistinguishable from such tissue in corresponding lesions of eosinophilic granuloma of bone. In a case of Letterer-Siwe disease running a relatively protracted course one is likely to find that some of the lesions are becoming scarified, collagenized and lipidized, the case thus passing into Schüller-Christian disease. Schüller-Christian disease represents the disorder in its most chronic and its most miscellaneous form.

Archives of Surgery, Chicago

48:105-184 (Feb.) 1944

- Nervous Regulation of Clotting Mechanism. G. de Takats.—p. 105.
*Significance of Supraclavicular Signal Node in Patients with Abdominal and Thoracic Cancer: A Study of 122 Cases. E. P. Viacava and G. T. Pack.—p. 109.
Apparatus for Measuring Rate of Enzymatic Digestion of Absorbable Surgical Sutures and Other Protein Fibers. K. S. Lion and I. W. Sizer.—p. 120.
Drepanocytosis (Sicklelema) and an Apparently Acute Surgical Condition of the Abdomen: Report of Their Occurrence in a White Youth, with Laparotomy. C. B. Canby, G. Carpenter and L. F. Ellmore.—p. 123.
Hemangioma of the Mediastinum: Report of a Case. W. E. Adams and R. G. Bloch.—p. 126.
Casein in the Local Treatment of Burns and Wounds. R. M. Curtis and J. H. Brewer.—p. 130.
*Pancreatic Calculi: Report of 7 Cases, in 2 of Which Cure Was Effected by Pancreaticolithotomy. J. Lionello, B. J. Ficarra and N. H. Ryan.—p. 137.
Simplified Surgical Approach to Hip. R. Sutherland and M. J. Rowe Jr.—p. 144.
Review of Urologic Surgery. A. J. Scholl and others.—p. 146.
Progress in Orthopedic Surgery for 1942: A Review Prepared by an Editorial Board of the American Academy of Orthopaedic Surgeons.—p. 166.

Supraclavicular Signal Node in Abdominal and Thoracic Cancer.—Viacava and Pack investigated the incidence of lymph node metastases in the supraclavicular space in 4,365 patients with abdominal and thoracic tumors, who were treated during the last two decades in the New York Memorial Hospital. Only 122, or 2.8 per cent, had involvement of the signal nodes. The greater frequency of metastases to the left side (59.8 per cent) is explained by the relationship of the thoracic duct to the supraclavicular nodes on this side. Metastatic involvement of lymph nodes in the right supraclavicular space (25.4 per cent) is less frequent and occurs mainly in patients with tumors of the thoracic cavity. Bilateral invasion of the supraclavicular nodes (14.8 per cent) is also more commonly associated with thoracic than with abdominal cancer. In 81 patients the signal nodes were invaded only in the advanced stages of cancer, and in the majority at the same time generalized metastases appeared in other organs. In 41 patients the supraclavicular metastases constituted the first clinical sign of a malignant tumor and led to search for the primary cancer. Aspiration biopsy was a valuable aid in the solution of these diagnostic problems. Palliative treatment by irradiation improved the local or supraclavicular condition and at times controlled the primary cancer for a while without appreciably increasing the length of life.

Pancreatic Calculi.—Lionello and his associates observed 6 cases of pancreatic lithiasis in Kings County Hospital between January 1938 and April 1943 and 1 case in private practice. Most investigators believe that the condition is rare, but the authors think that it would be preferable to state that the condition is infrequently encountered, possibly because of the failure of the clinician to consider it in differential diagnosis. The

total number of reported cases, including these in this paper, is 232. Stagnation of pancreatic juices, as a result of chronic inflammation with sclerosis, is the dominant causal factor of pancreatic calculi. Pancreatic stones are composed chiefly of calcium carbonate and tribasic calcium phosphate, but normal pancreatic juice does not contain calcium in these forms. An inflammatory process in the pancreas may be the cause of alteration of the chemical composition of pancreatic secretions. Pancreatic stones may be divided into true stones, found in the ducts; and false stones (calcification), found in the parenchyma. Pain is the most significant complaint. Associated diabetes or jaundice is seen rarely. The patient's history often suggests biliary or renal calculi. The diagnosis is established by roentgenologic studies of the abdomen. A simple flat roentgenogram of the abdomen will reveal the calculi. Surgical intervention is indicated when a diagnosis of pancreatic lithiasis is made. The safest approach to the pancreas is through the gastrocolic omentum. Where this approach has been utilized, there is reported an operative mortality of 7 per cent. Palliative treatment is of little avail. Unless the calculi are removed, the patient with symptoms must continue to complain of discomfort and look forward to the possibility of gradual destruction of the pancreas. The authors report the histories of 2 patients in whom pancreatic calculi were successfully removed and who at present are enjoying good health.

Bull. of the U. S. Army Med. Dept., Washington, D. C.

74:1-122 (March) 1944

- Treatment of Burns Due to Chemical Warfare Agents. S. S. Scherling, R. M. Overholt and K. H. Stahmer.—p. 52.
Sporotrichosis in Horses: Case Report. T. C. Jones and F. D. Maurer.—p. 63.
Treatment of Skin Infections in Assam-Burma Jungle. J. H. Grindlay.—p. 74.
Diphtheria Among German Prisoners of War. S. Fleck, J. W. Kellam and A. J. Klippen.—p. 80.
Opportunities for Treatment of Neuropsychiatric Patients. W. C. Menninger.—p. 90.
*Cartilage Banks. L. L. Nunn.—p. 99.
Bedbug Control in Large Army Camp. W. W. Towne and E. J. Gerberg.—p. 101.
Cyst in Sinus Containing Supernumerary Molar: Report of Case. J. E. Pleasants.—p. 107.
Calories Expended in Military Activities. H. Pollack, C. E. French and G. H. Berryman.—p. 110.

Cartilage Banks.—According to Nunn, human cartilage is the most satisfactory medium for the treatment of bony defects of the face, especially of the nose, malar region and supraorbital regions. Homocartilage is the ideal medium for restoration of certain defects in facial contour. Cartilage best suited for implantation is to be found in young healthy persons who have met accidental death. As soon as possible after death the anterior chest wall is prepared as for a surgical procedure, and it is opened in the midline by the operator under aseptic precautions. All costal cartilages on both sides are removed with rib shears and knife. Segments of cartilage are placed in sterile isotonic solution of sodium chloride. They can be prepared either immediately or placed in the refrigerator to be cleaned and prepared within the next forty-eight hours. All perichondrium must be stripped and scraped off. Segments are placed in a solution consisting of one part aqueous solution of merthiolate and four parts of isotonic solution of sodium chloride. A pint jar is an ideal container. Just before the cartilage is covered with the solution, a culture is made. The jar is placed in the refrigerator and the solution is changed every three weeks. Cartilage thus preserved is inert and can be implanted with impunity, regardless of age, color, sex or blood type of the patient.

California and Western Medicine, San Francisco

60:45-88 (Feb.) 1944

- Soft Tissue Complications of Fractures of I.I.V. A. B. Sirbu, M. J. Murphy and A. S. White.—p. 53.
Appendicitis. W. C. Murphy.—p. 56.
Rh Antigen: Its Clinical Importance. C. Weiss.—p. 59.
Exophthalmos in Diseases of Thyroid. M. H. Selye.—p. 64.
*Acute Calcified Subacromial or Subdeltoid Bursitis. F. R. Goff.—p. 65.

Calcified Subdeltoid Bursitis.—Guido observed 11 cases of calcified subdeltoid bursitis. Bosworth discovered the condition in 165 of 6,061 persons examined, an incidence of 2.7 per cent. The possibility of calcified subacromial bursitis must

always be considered when dealing with an acute painful shoulder. Diagnosis can be made by fluoroscopy and x-ray examination. Repeated trivial trauma is probably the most important etiologic factor. Focal infection probably plays no part in the production of the calcium deposit. The condition has its inception in the tendons of the short rotators of the humerus; especially the supraspinatus, and the subacromial bursa is secondarily involved. The calcium deposit may be present for a considerable length of time without the production of acute symptoms. The removal of the calcium deposit by surgical incision is the treatment of choice in the majority of cases. This is especially true for the acute fulminating type. Relief is immediate, complete and permanent. Other methods of treatment have also proved successful.

Connecticut State Medical Journal, Hartford

8:69-138 (Feb.) 1944

- *Problems of Postoperative Thrombophlebitis and Pulmonary Embolism. J. A. Evans.—p. 71.
Hospital and Medical Care. W. M. Allen.—p. 75.
Problem of Chronic Illness in Connecticut. K. F. Heiser.—p. 79.
Accuracy and Interpretation of Modern Blood Tests for Syphilis. E. K. Borman.—p. 82.
Advent of Microscope at Yale College. L. L. Woodruff.—p. 93.

Postoperative Thrombophlebitis and Pulmonary Embolism.—Postoperative pulmonary embolism, according to Evans, is more apt to arise from silent unrecognized areas of phlebotrombosis than from clinically recognized thrombophlebitis. Prophylaxis is the most important key to the problem. Patients over 50 years of age with arteriosclerosis and obesity, when subjected to hysterectomy, cholecystectomy, Miles resection, resection of carcinoma of the large bowel, prostatectomy or herniotomy, are the most likely candidates for venous thrombosis and pulmonary embolism. A history of previous venous thrombosis or pulmonary embolism greatly increases the possibility of postoperative recurrence. The incidence of pulmonary embolism was compared in two hospitals, in which during one winter season bicycle exercises were most faithfully carried out by the nursing staff of hospital A, while in hospital B these orders had not been given. Hospital B, with 10 per cent less major operations, had almost three times more cases of pulmonary embolism. One of the most important prophylactic measures is exercise of the feet in bed. Hospital personnel are ordered to remind patients repeatedly to wiggle their toes and feet a thousand times a day. For the last two years the author subjected patients with a previous postoperative or postpartum history of venous thrombosis or pulmonary embolism to anticoagulation therapy with dicumarol beginning about three days after operation if there is no danger of hemorrhage. A warning benign pulmonary embolism in a patient over 50 years of age is an indication for venous section and ligation if the source of the embolism can be recognized. An accumulation of more statistics is necessary before anticoagulation therapy with heparin and dicumarol can be considered a safe preventive of pulmonary embolism, and venous section and ligation can be omitted. In a series of 57 cases of postoperative venous thrombosis treated by combined heparin and dicumarol, 1 subsequent pulmonary embolism and 1 fatal pulmonary embolism occurred. Paravertebral procaine sympathetic block is reserved for patients with thrombophlebitis. Sulfonamide drugs are a useful adjunct in the treatment of thrombophlebitis. Papaverine is used to relax arterial reflex spasm.

Journal of Nervous and Mental Disease, New York

99:115-226 (Feb.) 1944

- Unusual Congenital Anomalies of Lumbosacral Spine (Spina Bifida), with Report of 3 Cases. J. M. Meredith.—p. 115.
Neurotic Components in Psychopathic Behavior. J. M. Caldwell.—p. 134.
Responses of Schizophrenic Patients to Induced Anoxia. W. Corwin and S. M. Horvath.—p. 149.
Eonism with Added Outstanding Psychopathic Features. D. M. Olkon and Irene Case Sherman.—p. 159.
Incidence of Bromism at Warren State Hospital. A. A. Kippen.—p. 168.
Reaction Around Cerebral Vascular Lesions and Its Bearing on Cerebral Localization. L. B. Alford.—p. 172.
Closeup of Psychosexual Gratification. W. Eliasberg.—p. 179.

Journal Pharmacology & Exper. Therap., Baltimore

80:119-204 (Feb.) 1944

- Pharmacologic Study of 5-Allyl-5- Δ^2 -Cyclopentenyl Barbituric Acid (Cyclopal). M. J. Vander Brook and G. F. Cartland.—p. 119.
Influence of Temperature on Action of Digitoxin and Potassium on Striated Muscle. S. A. Guttman.—p. 126.
Tissue Aldehydes and Their Reaction with Amines. K. A. Oster and M. G. Mulinos.—p. 132.
Chronic and Delayed Toxic Effects of Certain Saturated and Unsaturated Halogenated Hydrocarbons in White Rats and White Mice. B. E. Abner, S. H. Auerbach, J. M. Thuringer and S. A. Peoples.—p. 139.
Biochemical Aspects of Toxicity of Atabrine: I. Acute Effects of Massive Doses in Rat. J. V. Scudi, Viola C. Jelinek and S. Kuna.—p. 144.
*Id.: II. Influence of Diet on Effects Produced by Repeated Doses of Drug. J. V. Scudi and Margaret T. Hamlin.—p. 150.
Hypoprothrombinemia Induced by Administration of Indandione Derivatives. H. Kabat, E. F. Stohlman and M. I. Smith.—p. 160.
Contribution to Pharmacology of Nitrate Ester of Choline Perchlorate. C. J. Carr, F. K. Bell, W. E. Evans Jr. and John C. Krantz Jr.—p. 171.
Studies on Action of Morphine on Central Nervous System of Cat. A. Wikler.—p. 176.
Studies on Fate of Morphine Sulfuric Ether. F. W. Oberst and E. G. Gross.—p. 188.
Study of Digitoxin Binding Power of Serum and Other Soluble Tissue Proteins of Rabbit. G. Fayaz and A. Farah.—p. 193.
Effect of Propamidine and Certain Other Diamidines on Oxidation of Various Substrates by E. Coli. F. Bernheim.—p. 199.

Influence of Diet on Effects Produced by Atabrine.—Scudi and his associates found that rats maintained on a high protein-low fat diet appear to resist toxic effects on the liver of the daily administration of atabrine to a greater degree than rats maintained on low protein diets or a diet high in both protein and fat. Daily administration of large doses of atabrine (25 to 50 mg. per kilogram) to dogs produces inanition within three to six weeks. At lower dose levels (5 to 10 mg. per kilogram) this is not evident three to five months after initiation of drug administration.

New England Journal of Medicine, Boston

230:157-184 (Feb. 10) 1944

- Procedures of Blood Bank at Massachusetts General Hospital. L. Souther.—p. 157.
Diet in Pregnancy. C. L. Sullivan.—p. 167.
Rupture of Left Temporoparietal Brain Abscess into Ventricle: Report of Case, with Recovery. L. E. Wolfson.—p. 170.
Blood Banks and Blood Transfusion. J. F. Ross.—p. 171.

230:185-208 (Feb. 17) 1944

- Electromyographic Studies of Muscle Dysfunction in Infectious Polyneuritis and Poliomyelitis. Mary A. B. Brazier, A. L. Watkins and R. S. Schwab.—p. 185.
Geriatrics: Medical Care of Elderly. R. I. Lee.—p. 190.
Purpura Annularis Telangiectodes: Report of Case. S. M. Gunderesen and J. G. Bennett.—p. 193.
Blood Banks and Blood Transfusion. J. F. Ross.—p. 195.

New York State Journal of Medicine, New York

44:337-448 (Feb. 15) 1944

- Emotional Factors in Alcoholism. E. B. Allen.—p. 373.
Postconcussion Syndrome: Prognosis and Evaluation of Organic Factors. P. G. Denker.—p. 379.
*Sixteen Years' Experience with Placenta Previa, Emphasizing Conservative Therapy. W. L. Ekas.—p. 385.
Early Stages of Chronic Glaucoma. H. S. Gradle.—p. 391.
*Clinical Studies of Sulfamerazine. W. McDermott, D. R. Gilligan, C. Wheeler and N. Plummer.—p. 394.
Clinical Studies of Circulation Time with Objective (Photoelectric Cell-Dye) Method. B. Jablons, J. Cohen and M. Y. Swirsky.—p. 398.
Management of Injuries of Common Bile Duct. H. E. Pearce.—p. 403.

Placenta Previa.—Ekas presents 86 cases of placenta previa which were observed in sixteen years among 14,386 obstetric cases. Conservative measures were employed in the treatment of 95.3 per cent. The hydrostatic or Vorhees' bag was used in 76.6 per cent. The maternal morbidity was 40 per cent and the mortality 2.3 per cent. The uncorrected fetal mortality was 55.8 per cent. Two factors, prematurity and asphyxia, keep the fetal mortality high. The author thinks that not enough importance is attached to the initial hemorrhage in the latter half of pregnancy. Transfusions of whole blood and/or plasma in amounts sufficient to replace blood loss will save many lives. Infection should be feared as much as hemorrhage in treating placenta previa. The treatment should consist of conservative measures in the large majority of cases, and cesarean section should be used in the small well selected group.

Clinical Studies of Sulfamethazine.—McDermott and his associates studied the pharmacology, toxicity and therapeutic effectiveness of sulfamethazine in 34 patients with various infections. They think that therapy with sulfamethazine is less satisfactory and reliable than is therapy with sulfadiazine together with appropriate adjuvant alkali therapy.

North Carolina Medical Journal, Winston-Salem

5:1-36 (Jan.) 1944

- Amebiasis. P. W. Brown.—p. 1.
Carcinoma of Large Intestine. D. S. Daniel.—p. 4.
Intensive Treatment of Early Syphilis. W. L. Fleming.—p. 6.
Sterility. A. Grollman.—p. 13.
Nature of Tremors. A. A. Morris Jr.—p. 15.

5:37-80 (Feb.) 1944

- Present Status of Vitamin Therapy in Deficiency States. J. M. Ruffin and D. Cayer.—p. 37.
Vitamin C Nutrition Under Camp Conditions. D. F. Milam and I. H. Manning Jr.—p. 41.
What the Practitioner Should Know About Spine Injuries. M. A. Pittman.—p. 43.
Spontaneous Pneumothorax: Diagnosis and Prognosis. E. McG. Hedgpeth, W. R. Berryhill, W. G. Morgan, R. E. Stone, F. G. Patterson and Ruby A. Smith.—p. 48.
Modern Treatment of Pinworm Infections. W. N. Sisk.—p. 52.

Public Health Reports, Washington, D. C.

59:137-188 (Feb. 4) 1944

- Sanitation Manual for Public Ground Water Supplies.—p. 137.

59:189-220 (Feb. 11) 1944

- National Inventory of Needs for Sanitation Facilities: II. Milk Pasteurization Facilities. J. Andrews and A. W. Fuchs.—p. 189.
Health of Student Nurses: Report of Study Conducted in School of Nursing. L. F. Fuld.—p. 205.

Surgery, Gynecology and Obstetrics, Chicago

78:113-224 (Feb.) 1944

- Surgical Treatment of Peripheral Nerve Injuries. C. C. Coleman.—p. 113.
Treatment of Wounded in Combat Zone. D. L. Borden.—p. 125.
Cervical Lymph Node Metastasis as First Symptom of Cancer. H. Martin and H. M. Morfit.—p. 133.
Experimentally Increased Blood Supply to Head and Neck of Femur. W. G. Stuck and J. J. Hinchey.—p. 160.
Bacterial Flora of Fresh Accidental Wounds. W. A. Altmeier and E. W. Gibbs.—p. 164.
Simple, Useful Anterior Gastroenterostomy. F. H. Lahey.—p. 169.
Clinical and Bacteriologic Study of Phenol as Skin Antiseptic. W. E. Brown, M. F. Gunderson, Pauline Schwartz and Violet M. Wilder.—p. 173.
*Protein Deficiency in Surgical Patients. K. A. Meyer and D. D. Kozoll.—p. 181.
Red Cell Transfusions in Treatment of Anemia: Further Observations. H. L. Alt, S. G. Taylor III, D. L. Custis and F. D. Bernard.—p. 191.
Carcinoma of Cervix: Wertheim Operation. J. V. Meigs.—p. 195.
"War Injuries" in Civil Practice. H. J. Warthen Jr.—p. 200.
*Uterine Contractions Associated with Prolonged Labors: Observations of Uterine Motility made with Lóránd Tocograph. D. P. Murphy.—p. 207.
Conservative Treatment of Acute Inversion of Uterus. H. Burwig.—p. 211.
Right Rectus Gridiron Incision in Congenital Hypertrophic Pyloric Stenosis. H. H. Davis.—p. 213.

Protein Deficiency in Surgical Patients.—Surgical disease as such and in addition operative procedures drain the protein depots of the body and may produce hypoproteinemia. In studies on 278 patients Meyer and Kozoll investigated (1) the incidence of hypoproteinemia in the various surgical diseases before and after operation, (2) its influence on the final outcome of the disease, (3) its relation to red cell volume and protein concentration and (4) the therapeutic results obtained by various protein sources. Hypoproteinemia was encountered most frequently in bleeding peptic ulcers, carcinomas of the gastrointestinal tract, bowel obstruction and intestinal fistulas. The hypoproteinemia in peptic ulcer patients was corrected by liberal amounts of blood, blood plasma and amino acids. Hypoproteinemia in carcinoma of the gastrointestinal tract, bowel obstruction and intestinal fistulas was aggravated by surgery but improved if intensive therapy was employed. Of 32 fatal cases, 18 showed a hypoproteinemia either before or after surgery. Plasma protein rise was related to the administered amount of whole blood, plasma or amino acids and combinations of these.

Consistent improvement was seen when 2,000 cc. or more of blood alone or in combination with plasma or amino acid was given. Whole blood appears to improve plasma proteins more than does plasma, owing to the value of hemoglobin as a protein source. The combination of amino acids and whole blood as a means of treating hypoproteinemia warrants further use. The daily observation of the total protein, hematocrit and hemoglobin is suggested as an aid in deciding whether whole blood, plasma or dextrose and/or saline solution meets the patients' requirements best.

Uterine Contractions in Prolonged Labors.—If labor is prolonged, it must be determined whether the failure of the patient to deliver in a reasonable length of time is due to disproportion or to inadequate contractility of the myometrium. Disproportion can be diagnosed by physical examination or x-ray pelvimetry. The efficiency of uterine contractions is somewhat more difficult to evaluate, but recording the character of the contractions with a Lóránd tocograph is helpful. The uterine contractions of 105 women who were being delivered vaginally in the Hospital of the University of Pennsylvania were registered at one and a half to two hour intervals throughout their labors with a Lóránd tocograph. Murphy reproduces and analyzes the tocographic records of 3 patients who experienced prolonged labors. The uniformity in the character of the tracings of a given individual demonstrates the feasibility of recording the uterine contractions at frequent intervals throughout labor. The character of the contraction pattern is established early in labor and with minor modifications persists throughout labor. The contraction pattern of one individual differs significantly from that of another. A prolonged labor may be associated with either a normal or an abnormal uterine contraction pattern. The persistence of a normal contraction pattern throughout a prolonged labor suggests that any delay in delivery is due to disproportion rather than to inertia. The contraction pattern characteristic of primary uterine inertia is established early in the course of labor. The tocograph will not only record the existence of a primary inertia but also indicate its degree. Regular tocographic tracings will record the first appearance of secondary inertia. Systematic recording of the character of the uterine motility during labor by means of the Lóránd tocograph can aid the obstetrician in the conduct of the labor.

Texas State Journal of Medicine, Fort Worth

39:509-558 (Feb.) 1944

- Keep the Doctor American. R. A. Miller.—p. 518.
Medical and Surgical Care of Hypertrophy and Cancer of Prostate. H. H. Young.—p. 521.
Trigeminal Neuralgia and Related Conditions. J. Greenwood Jr.—p. 526.
Nonspecific Granuloma of Colon. J. P. Barnes.—p. 529.
*Occupational Disease of Electric Welders. T. R. Jones and J. A. Lockhart.—p. 532.
Review of Coccidioid Granuloma in Texas: Report of Case. P. Marceuse and L. Karotkin.—p. 534.
Feeding Problems in Infancy. J. P. Gibson.—p. 537.
Thymic Cyst of Neck: Report of Case. T. L. Hyde, E. D. Sellers and May Owen.—p. 539.

Occupational Disease of Electric Welders.—According to Jones and Lockhart, welding produces smoke composed of ozone, nitrogen oxides, silicon, asbestos and small particles of iron less than 0.5 microns in diameter. The composition of the smoke varies with the type of metal being welded. Ordinarily the welding rods are composed of approximately the same alloy as that being welded. Welding fumes may produce acute and chronic changes in the lungs. The acute changes produced by heavy concentrated exposure consist of pulmonary edema, which may be complicated by bronchial ulceration and pneumonia. After repeated exposure, chronic changes ensue, consisting of chronic bronchitis, pulmonary fibrosis, asthmatic wheezing and eventually pulmonary emphysema. Persons with arrested tuberculosis who attempt to work around concentrated welding fumes have a tendency to rapid development of pulmonary hemorrhage. Air masks and exhaust hoods give protection against the fumes but are not employed extensively. Treatment is unsatisfactory as long as the men are exposed to welding fumes. The only effective way to overcome the condition is a change of occupation. Men working at night seem to suffer more than men working in the day.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

EFFECTS OF SKIN SECRETIONS ON PEARLS

To the Editor:—What effect do skin secretions have on discoloring a pearl necklace, particularly if the wearer of the necklace has taken medications including sulfur preparations, iron preparations or various vitamins?

Frank L. Putman, M.D., Honolulu, Hawaii.

ANSWER.—Scientific explanation for the effect of skin secretions on pearls has not been discovered. Pearls are the softest of all gems, composed chiefly of calcium carbonate in the form known as aragonite, with a little organic matter and a small amount of water. Dakin (W. J.: Pearls, Cambridge University Press, 1913, p. 61) quotes Harley's analysis:

Calcium carbonate	91.72
Organic matter	5.94
Water	2.23
Residue	0.11

The surface consists of extremely thin layers of nacre, about 0.0005 mm. thick, bonded by an albumin, conchiin.

Catelle (W. R.: The Pearl, Philadelphia, J. B. Lippincott Company, 1907, p. 71) says that the lustrous surface of the pearl is injured by the operation of boring for stringing, by hot water, by certain gases and by age. Aging of pearls is probably really drying, for Kunz and Stevenson (The Book of the Pearl, New York, Century Company, 1908, p. 395) tell of the necklace of the Empress Eugenie, bought about 1860, "in as good condition today as when she first obtained it." The pearls of the Empress Maria Theresa in the royal treasury in Vienna were also in excellent condition. They state that pearls are sometimes injured by exudations from diseased skin, by acid perspiration, by sulfurous smoke or by bright sunlight.

An authority on physiologic chemistry and the action of the vitamins, in a personal communication, states that there is no possibility that the administration of iron or vitamins by mouth could result in any damage to pearls worn next the skin. The question of the effect of ingested sulfur is not so easily decided. Klauder and Brown (Certain Phases of Sulfur Metabolism of the Skin, *Arch. Dermat. & Syph.* 34:568 [Oct.] 1936) found that the sulfur content of the skin, including sweat, sebum and scales, is wholly organic in form, cysteine, cystine, glutathione and methionine. In infancy and childhood it is high, diminishing to the age of 16, after which there is little change. In most diseases of the skin and in arthritis and tuberculosis it is diminished. Only in patients with disseminate neurodermatitis, psoriasis, melanomas and in some cases of lupus erythematosus is it increased. In the opinion of the chemist quoted one must think of the possibility of alkaline sweat changing the organic sulfur to sulfides, which might affect the pearls; but sweat becomes alkaline ordinarily only when profuse, which would dilute the sulfur and lessen whatever effect it might otherwise have.

The reaction of the skin is normally acid, becoming less so when sweating becomes visible. Brill (Ueber den Sauregehalt des menschlichen Schweiss bei Hautkranken und Hautgesunden, *Arch. f. Dermat. u. Syph.* 155:199, 156:488, 1928) records that the sweat of patients with psoriasis is more acid than that of others. An eminent American authority on pearls, Mr. Paul Juergens, in a personal communication expresses doubt concerning the injury of pearls by perspiration but concedes that a harsh, dry skin may cause abrasion of the surface of the pearls, thus destroying its luster. He writes "I notice in Kunz and Stevenson's Book of the Pearl, page 397, they state, 'Furthermore, pearls have never lived—and hence they can never die' (referring to the expression frequently used 'dead pearls'). I have always felt it better to say that pearls may dry but not die. The 2.23 per cent of water is at least moisture. If that moisture should evaporate there might be a tendency for the edges of the minute patches of nacre to separate and form what may be termed a surface crack. This, I think, is true because a pearl with what we call a surface crack can very often be 'healed' by placing the pearl in a corked container which is half to three quarters full of a fine, thin mineral oil and ether. The container is warmed very gradually and the fumes of the ether cause pressure and the oil is driven into the pearl. On cooling, the contraction naturally forces excess solution out of

the pearl and retains sufficient oil in the minute separation to put the minute patches back into place. We call this healing. My thought is this: If through excessively dry skin or from any other reason the minute patches separate, the pearl is vulnerable and could take on any secretion from the body. I do not know, of course, if sulfur or iron is contained in perspiration or any other secretion of the skin. If there is, then I should think the pearl with its separation layer would absorb that secretion—iron, sulfur, the salt or acid of perspiration—and have a tendency to widen the separation rather than heal it. Would the oil of the skin be strong enough to counteract these secretions?"

To prove that excretion of sulfur through the skin may damage pearls it would be necessary first to rule out damage by other factors—rough skin, strong sunlight, other drying influences—and show by comparison with a closely similar pearl kept under ideal conditions as a control that the pearl worn by the patient under sulfur treatment had deteriorated.

DERMATITIS FROM BEET-SOL

To the Editor:—I am interested in obtaining information with regard to the chemical nature of a whitish granular powder which a patient of mine employed to wash soiled painted walls. The material is "Beet-Sol." He purchased it in bulk from a paint store. Following its use the skin of his hands and forearms showed erythema, and slight swelling developed on the fingers. Apparently the condition was a dermatitis due to contact. Can you furnish me with information relative to the chemical nature and the appropriate neutralizing chemical, if any? Will this chemical attack rubber gloves?

Braham H. Golden, M.D., New York.

ANSWER.—"Beet-Sol" is said to be trisodium phosphate. This chemical is a strong alkali, and getting the hands wet with a concentrated solution of trisodium phosphate for any length of time will cause dermatitis. If a solution of this compound is to be employed to wash soiled painted walls or anything else, it should not be permitted to come in contact with the skin. This can be accomplished by using a long handled mop or by wearing rubber gloves and aprons made of some impervious material such as rubber, neoprene, vinylite or pliofilm. Trisodium phosphate will not readily attack rubber.

Paint removers and paint cleansers in general consist of strong alkalis or solvents and are primary skin irritants and should be handled according to the precautions noted.

SERUM ADMINISTRATION AND ALLERGY

To the Editor:—The query and answer "Anaphylaxis Under Anesthesia" in the Feb. 26, 1944 issue prompts me to reiterate and supplement my comments on serum precautions which you published under Queries and Minor Notes, Oct. 31, 1936 and in Correspondence, Dec. 5, 1942 respectively.

Dependence on the history, skin or eye test as criteria for using serum with safety is hazardous except in the most experienced hands, and even then not without danger. The reasons for this are several:

1. Many patients are not aware that one or more members of their family are allergic.

2. The same reason holds true with the patient's previous history. Many people do not know whether or not they are allergic. It would surprise physicians in general to learn how many frank hay fever and other pure allergies the specialist sees that were termed everything but allergy.

3. Dependence on the skin or eye test presupposes more than a little technical skill. For example, by the intracutaneous route I have seen the test usually performed with the insertion too deep in the skin. This obscures a moderately positive test and is classed as negative. It is the exception to see a control test done simultaneously, and this is important.

I repeat and elaborate on the procedure of administering serum:

1. Do not give a serum injection without realizing that it may be dangerous. Do not hurry; consider the findings.

2. Get a careful family and previous history, inquiring about allergic diseases not only by specific names (which many people do not know) but by symptoms also.

3. Are you sure of your skin or eye tests?

4. If two or three tests are strongly positive and serum must be given, use a despeciated serum or rabbit serum, the latter requiring rabbit serum allergy tests first.

5. Inject epinephrine hydrochloride 1:1,000, 4 to 8 minims (0.25 to 0.5 cc.) subcutaneously, depending on age, ten minutes before any serum injection.

6. If injecting serum intramuscularly or subcutaneously, use the upper extremity about midway, so that in the event of untoward immediate symptoms a tourniquet can be applied proximally. Obviously, this would be impossible if the injection should be made in the gluteal region, where so many are given.

7. Owing to the evanescent nature of epinephrine, and to avoid or minimize late serum reactions, give orally ephedrine and phenobarbital two hours after the injection and continue every three or four hours for three to five days.

If serum must be given, use epinephrine and the ephedrine-phenobarbital combination as outlined. David Louis Engelsher, M.D., New York.

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SIXTH ANNUAL CONGRESS ON INDUSTRIAL HEALTH

REPORT OF CHAIRMAN OF COUNCIL ON
INDUSTRIAL HEALTH, AMERICAN
MEDICAL ASSOCIATION

STANLEY J. SEEGER, M.D.

TEXARKANA, TEXAS

This is the Sixth Annual Congress sponsored by the Council on Industrial Health of the American Medical Association. These conferences represent one phase of the work of the Council. They have served, among other things, to provide a basis for wide appreciation of the enormous scope of industrial health. They have revealed the complex character and the contentious nature of some of the problems in this field. One fact which has emerged is not new to those who devote much time to industrial health problems. Conditions of work and their effect on health in every field of human activity eventually come within the scope of medical study and research. The problems of industrial health are not static. Science gives new knowledge. Medical concepts change and industry also changes, not only in its technics, but also in its attitudes.

The perfection of methods of treatment and prevention by physicians and hygienists and engineering specialists has, in the past, been followed by a lag in their utilization by practicing physicians who care for a large segment of the industrial population. The difficulties of establishing industrial health programs in small plants characterize the manner in which science has outstripped the advancement of social and professional organizations which would make possible the fullest utilization of our knowledge. This lag has been caused by several factors, one of the most important of which has been the extremely rapid development of industry. Another has been the failure of medical educators to train students, both undergraduates and graduates, in preventive medicine and public health activities and to assign to industrial medicine the place which its importance justifies.

The medical implications in our industrial expansion and the changes in the practice of medicine effected by workmen's compensation laws have not been adequately emphasized by our medical schools. Industrial hygiene has been widely taught as a relatively minor section of preventive medicine. Public health problems of medicine and surgery have been presented without

any relation to prevention and control over exposure and only as examples happen to present themselves in clinics or wards. Industrial medical administration has been almost entirely ignored. The experience of a number of medical schools amply demonstrates that reasonable acquaintance with the subject can be provided at modest expense. The all important requirement for improved instruction is a unified plan which assigns over-all responsibility to one single teaching division, preferably preventive medicine and public health.

The interest of the Council in education in industrial health has been expressed by (1) the original report of its committee on scope, (2) the formation of a subcommittee on education, (3) articles on industrial medical education in the special industrial health issues of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, (4) instructions to state and county committees and (5) development of a syllabus for undergraduate and graduate teaching. The response of medical educators has been encouraging not only to the program of the Council but also to the efforts of the American Association of Industrial Physicians and Surgeons.

On previous occasions I have emphasized the essentially medical character of industrial health activities. At present, when medical and health plans centering about industry and when hospital relationships are matters of such serious concern, this basic principle, the essentially medical nature of health activities, should more than ever be subjected to discussion. Unfortunately, in discussions having to do with industrial health and medical care plans and with hospital organization the talk is around this point but the principle itself is never emphasized, nor is any constructive effort made to apply it. This principle is basic, and it is vital to the problems which are pressing for solution today. We spend much time in discussing medical relationships in hospitals and in analyzing medical features of various hospital plans and their effect on medical practice. Why is the fact not brought out that in the majority of hospitals in America today the medical staffs do not control the medical policies or in many instances know the names of the lay persons who decide the policies of the institutions in which they practice? The serious nature of this widely prevalent situation has not been headlined in the discussions of medicine's present difficulties.

This discussion of hospital problems is not beside the point here. The hospital has been a normal nucleus about which efforts for medical care have revolved. With the acceleration of all human effort during the war, the tremendous industrial expansion, the shifting

of population, the limited number of physicians, the difficult problems of housing and sanitation and transportation and nutrition there has come as a matter of course a great impetus to the study of industrial health programs and of medical care plans. The interest which has been so stimulated has been productive of definite results in many industrial centers, and the development is continuing. In both the hospital and industry the physician is dealing with corporations. In both a third party is interested in certain phases of medical care. In industry the corporation has a legal obligation to assume certain medical responsibilities. In both the hospital and industry we have a growing interest in the expansion of health service on the part of the corporation. In the case of industry this interest is being augmented by labor organizations. In viewing industry we find that, in contrast to the hospital, we are dealing with a tangible organization where names are known and where, in most instances, the directing heads are residents of the communities in which the physician practices. The contacts necessary for the physician to organize health activities exist. It is recognized that other groups, business, labor, insurance, government as well as several nonmedical professional skills, have a real interest in the delivery of health service. It is our concern that the physician should be the central figure in the organization which delivers such service. The physician's place in such a program will be dependent on his own leadership, his place in his own community. The problem is essentially a home town problem. While we have perhaps become conditioned to look for master blueprints, we should remember that the minimum requirements for health services in industry have been defined and the principles involved are well known and well understood. The delivery of competent health service in industry demands that the position of the physician in the structure of industrial organization be clearly visualized and that his relationship to other interested skills should be clearly analyzed.

With the increased interest in medical care plans has come a discussion of the desirability of the organization, on a wide scale, of medical groups or clinics. The arguments favoring the extension of group or clinic practice need not be recounted here. The advantages offered by this type of practice are generally conceded, as is the need for making more generally available various diagnostic aids. This does not mean that the general practitioner must disappear or that the specialist should not have a broad knowledge of medicine which will enable him to do a good job at what has been dubbed recently as solo practice. Clinic or group practice has become so popular a phrase and has been so widely recommended, particularly by some industrial leaders, that it would seem a logical step to reexamine the fundamental professional relationships involved and the methods of business organization of clinics under the principles of medical ethics. The professional relationships and business relationships in groups and clinics are generally accepted as ethical and sound, but the basic principles of organization are not too well understood. A critical analysis of this type would be most helpful in clarifying the situation and in determining the desirability of accelerating the development of this type of medical entity on a broader scale.

The activities of the Council during the last year have been increased but have adhered essentially to the lines originally drawn. Since the inception of the Council, its members and others interested in its work have realized the necessity of developing relationships with trade associations, business organizations and other extraprofessional groups having a genuine interest in the health of workers. The vital concern of the worker himself has not been overlooked. Working contact with organized labor has not been easy to establish in spite of the obvious importance of the activities of the Council and the Association to various labor groups. It is significant that the likelihood of establishing some satisfactory contact and working arrangement with labor seems brighter now than it has at any time in the past six years. In the work of the Council during the past year, two reports should perhaps receive mention now. The first is the Report on Standing Orders for Nurses, which has been well received. The Council has recognized the important position of the nursing group in industrial health activities and has sponsored efforts to harmonize activities of physicians and industrial nurses.

The Council has also issued a report on Physical Examination in Industry. Physical examination will in all likelihood assume a place of unusual importance in coming months because of the necessity of reemployment of disabled persons. There are evidences that labor itself will restudy and probably reverse its stand in some instances on this important phase of industrial health. The contributions of a scientific nature which have been made by the various councils, bureaus and scientific sections of the American Medical Association are almost limitless, and these resources are at the service of those who are interested in industrial health programs.

This Council has stimulated in the various scientific sections the creation of committees on industrial health, and several have made noteworthy contributions. The activities of some of these special committees are reflected in the present program.

SUMMARY

1. The physician should be the central figure in health activities, whether in the field of clinical medicine, public health or preventive medicine.
2. The problems of medical service in this country are being solved in many areas by developments which center about industry and are essentially on a grass roots basis.
3. In a majority of hospitals in America the staff has no control over medical policies. The organization of many hospitals is obscure or so ill defined that medical staff organization cannot contact the lay individuals who control policies.
4. The organization of industry is such that it lends itself to a logical and ethically sound approach to the development of health programs.
5. Because of the widespread interest in this type of practice, the practical application of the principles of medical ethics to the professional and business relationships of medical groups or clinics should be restudied and clarified and defined.

CONQUEST OF TUBERCULOSIS
IN INDUSTRY

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The control of tuberculosis in industry has now become a real possibility with the development and practical application of inexpensive mass radiography. Standard x-ray procedure with 14 by 17 inch films, unanimously considered the most accurate method for the detection of lesions characteristic of early pulmonary tuberculosis, has been too costly in material and personnel for use on a large scale. Cheaper and more widely applicable technics have long been needed and have finally been provided through the use of rapid film methods, 35 mm., 4 by 5 inch celluloid films and 14 by 17 inch paper films.

Extensive use of the small film technic by the armed forces has at last enabled x-ray examination to assume the role it deserves as a weapon in the fight against tuberculosis. Now the work must be extended on a grand scale among industrial workers and their families.

Tuberculosis strikes down the very ones who are most valuable as industrial workers—men and women between the ages of 20 and 45. Nearly one half (47 per cent) of all deaths from tuberculosis in this country during the period from 1939 to 1941 occurred among this age group. From early adulthood to age 35, tuberculosis is the leading cause of death. It is one of the first three causes of death at ages 15-49. For ages 20-34 one out of every six deaths among white persons and one out of every three deaths among nonwhite persons is due to tuberculosis.

The death rate from tuberculosis (all forms) for males is higher among residents of larger cities than among residents of cities of intermediate size, and that of the latter in turn is much higher than the rate for residents of rural areas. For females the variation of the death rate by size of city is almost negligible.

When workers are attacked by tuberculosis—recent surveys show that 1 per cent of our manpower is affected—they perform their jobs inefficiently, increase absenteeism and unwittingly spread sickness to others.

Although there has been no apparent increase in the amount of tuberculosis in this country as a whole since the beginning of the war, tuberculosis has formed a higher proportion of deaths from all causes in both urban and rural "critical areas" than in urban and rural "noncritical areas."

In these "critical areas" the unfavorable objective circumstances of overcrowding, insanitary living conditions and unusual fatigue are strikingly apparent. Tuberculosis control efforts should therefore be concentrated on these areas in order to forestall the expected rise in tuberculosis mortality as a result of the war.

The Public Health Service established a tuberculosis control office soon after war was declared for the express purpose of assisting state and local health departments in the development of tuberculosis control programs as a part of emergency health and sanitation

activities. The principal objectives of this office are as follows:

1. Mass chest x-ray examination of workers in war industries and of families in war industry communities, in cooperation with state and local health departments and voluntary tuberculosis associations and local medical societies.

2. Development of workable procedures, in cooperation with the Selective Service System and the armed forces, by which cases of tuberculosis discovered among rejected recruits will be reported promptly to health departments for follow-up by family physicians and local chest clinics.

This includes technical assistance in the establishment and preliminary maintenance of simple and efficient medical records systems so essential for follow-up activities. The real worth of any case finding program must be measured in terms of completeness and adequacy of follow-up of newly discovered cases.

In order to demonstrate these new technics in mass radiography and at the same time actually to begin surveying large industrial groups, the Public Health Service procured eight transportable 35 mm. x-ray units and two 4 by 5 inch machines.

In assigning these units to state and local health departments, preference was given to requests for service to ship yards, ordnance plants, air depots and other essential war industries where workers can be examined on a mass basis. It is not profitable to use rapid film methods in small plants. Too much time is spent in setting up and dismantling equipment. In such instances local x-ray facilities that produce films of regular size can be used advantageously. Local tuberculosis associations can be very helpful in developing programs in the large number of small yet vital plants.

These small film units are lent to health departments for limited periods to demonstrate the need for such services, to train local personnel and to help local health departments and industries establish their own mass case finding programs. A limited number of small film units can still be purchased on the open market. In addition, satisfactory home made photofluorographs can be constructed locally at reasonable cost if x-ray transformers, control stands and tubes are available to complete the whole unit.

Each of the field units of the Public Health Service consists of a medical officer trained in interpreting small films, two technicians, a record clerk and complete equipment for exposing and processing several hundred films per day. Recently developed automatic roll film cameras operated synchronously with the x-ray exposure from a single control stand have greatly speeded up both exposures and development. Over 700 chest films can be obtained on a 100 foot roll of film. This entire roll can be processed in one single operation in a Stineman tank.

A significant contribution in mass radiography was made during the past year when Dr. Russell Morgan of the University of Chicago adapted his photoelectric timing mechanism or phototimer to 35 mm. photofluorography. The Morgan phototimer was given its first extensive trial with one of the Public Health Service field units in Washington, D. C. Over 50,000 films have been made with this phototimer equipped unit, and the results are remarkably consistent and eminently satisfactory.

This device greatly simplifies the whole technic of mass radiography. It is no longer necessary to measure

or estimate the thickness of the chest of the individual to be examined. It is no longer necessary to set the milliamperage, kilovoltage or timer of the x-ray control stand. The controls are set at 200 milliamperes and 90 kilovolts at the beginning of the day's work; from then on the subjects are simply placed before the fluorescent screen of the machine one after the other. The technician merely closes the exposure switch and the phototimer does the rest, regardless of the size of the subject or the type of pathologic condition hidden within the chest. The photoelectric timing mechanism terminates the x-ray exposures at the instant the films have received the proper quantity of radiation to insure excellent chest films of uniform quality. This uniformity not only aids the diagnostic skill of the interpreters but also reduces fatigue when large numbers of films are examined.

Further developments in the speed of screens and film and image size of small films may be expected because of the great interest in and growing application of mass radiography to tuberculosis control.

The choice of small film equipment for a particular industrial health program must be based on careful consideration of the extent of the problem, funds available, personnel obtainable and specific objectives of the program in each proposed application. It is not possible at this time to discuss the relative diagnostic accuracy of different kinds of apparatus because of the lack of any comprehensive and definitive comparative studies on this subject in the medical literature up to the present. Such studies are now in progress and will be reported on in the near future. In our experience, all of these methods in the hands of competent and specially trained workers are effective in detecting early pulmonary lesions, with indications that the efficiency increases as one goes from 35 mm. up to 14 by 17 inch celluloid films.

Sound public health practice demands that the method used be one which benefits the largest number of persons in the industry or the community. When available funds are limited, it is of greater value to examine 100,000 persons with small films and miss a few minimal cases than to examine only one tenth of that number at about the same cost, using large celluloid films and leaving 90,000 persons without benefit of any x-ray examination whatever.

During the year and a half ended in December 1943 the field units of the Public Health Service have surveyed 117 industrial and other population groups in eleven states, the District of Columbia and Mexico City. A total of 559,306 individuals have been examined, of whom 5,648 showed x-ray evidence of significant reinfection tuberculosis. This constitutes 1 per cent of the persons examined. Of these 5,648 positive films, 62 per cent were minimal, 31 per cent moderately advanced and 7 per cent far advanced in extent. This distribution is of great interest in view of the fact that minimal cases comprise only 10 to 12 per cent of the tuberculosis case loads in the majority of communities.

Included in the surveys were two groups of particular interest. Over 110,000 government workers in Washington, D. C., were examined at the request of the District of Columbia Health Department. The prevalence of positive findings characteristic of reinfection tuberculosis varied from 0.7 per cent to 2.1 per cent, with an average rate of 1 per cent. These results are interesting when it is recalled that many of these persons are so-called white collar workers.

The other group consisted of Mexican laborers examined at the source of recruitment in Mexico, D. F., for the War Food Administration. Nearly 100,000 laborers have been examined to date. All those with abnormal x-ray findings were excluded from employment. As a result, many persons were prevented from bringing the disease unknowingly into the country and spreading it to those with whom they might come in contact. This service is still going on at the present time.

As pointed out previously, it is essential to examine all present employees and all new employees and to make periodic examinations at reasonable intervals of the entire working force of an industry in order to discover new cases as early as possible. Careful clinical study will then provide a sound medical basis for the immediate and ultimate disposition of each person suspected of having pulmonary tuberculosis.

Depending on the extent of the lesion, evidence or absence of activity and work capacity of the individual, definite placement plans can be made for continued employment under medical supervision or interruption of work because of the need for isolation or treatment.

Care must be exercised in the diagnosis and determination of activity of minimal lesions. Many employees have been penalized unnecessarily because of hasty conclusions drawn from the interpretation of a single flat plate of the chest. The more one sees of so-called minimal lesions on x-ray films, the more cautious one becomes in the interpretation of their significance. It has been found that competent readers often do not agree on the status of activity of a lesion on a particular film. It is also true that the same reader will not always agree with his first interpretation of a single film when reading it another time. The only safe rule to follow is careful clinical study, including examination by gastric lavage and tuberculin tests for differential diagnosis before definite diagnosis is made. It may be necessary also to wait three to six months for comparative clinical study before final diagnosis can be made.

An equitable labor policy must be established for those found to be tuberculous if the control program is to have permanent success. It has been found that health committees of labor unions are sympathetic to this type of health activity if they are informed of the full implications of the presence of a communicable disease in a fellow worker. A sick worker is a liability to himself, his family and his union, not to mention the industry and the community. When these facts are presented in their true light, rarely has there been difficulty in obtaining full cooperation.

If tuberculous workers are to be rehabilitated on a sound basis, industry and the community must accept the responsibility of providing both temporary and permanent sheltered employment for a certain number of workers. The English have demonstrated the effectiveness of practical measures such as the industrial colony, the training colony and the local workshop. This subject presents many difficulties, but these can be overcome if full use is made of our tremendous and varied resources.

Because tuberculosis is a social and economic as well as a medical problem, other groups besides the medical profession are sooner or later drawn into the picture. For this reason it is well to plan a program of cooperative enterprise right from the beginning. The local welfare agency, the voluntary tuberculosis association, management and labor are soon involved with

the health department and local physicians in the after-care and rehabilitation of tuberculous industrial workers and their families. It is much better to draw these other groups into partnership in the initial phases of the work than to come to them for help after they have been considered nonessential. Successful tuberculosis control requires careful long range, community wide planning.

The time has come for the public to accept the responsibility of providing financial security for the tuberculous worker and his family under any circumstances associated with the control of his disease. Overcrowded living conditions, poor home hygiene and fear of want during the absence of the bread winner from the house all contribute to failures of arrest of the disease in individual cases and play an important part in the continued spread of the disease.

A comprehensive scheme will be required to deal with these problems, developed in close cooperation with the medical services. Grants should be available to patients during treatment and during after-care and rehabilitation, in some cases for prolonged periods of invalidism, and if necessary for indefinite periods if permanent disability renders the individual unfit for work. Provision will need to be made for the proper care of children when the mother is removed from the house for treatment of her disease. Unless there is freedom from want and adequate maintenance without anxiety, the best medical care program for tuberculosis control in industry and in the community will be only partially successful and in the long run very costly.

Consider what the new case finding activities mean in terms of wartime tuberculosis control and ultimate eradication of the white plague. It is estimated that from 14 to 17 million persons aged 20 or more, or nearly 1 out of every 5 adults in the United States, have had chest x-ray examinations by the armed forces, health departments, industry and voluntary health agencies by the end of 1943. Therefore the case load of known tuberculosis has shown a significant increase. Ways and means must be found to furnish each patient with all the services successfully employed in the control of this disease. This will tax the ingenuity of those responsible for the care and supervision of this growing army of the tuberculous.

The Public Health Service will assist state and local health departments in the development of control programs by setting up standards based on careful research in public health methods, by offering consultation, by demonstration of new techniques, by limited grants for follow-up facilities and by training much needed professional personnel. The state and local health departments will work in close cooperation with public and private industries and private physicians in the establishment of effective tuberculosis control activities as an integral part of the general industrial health program. State or county operated units can be used for joint operations in small industries. The industrial physicians and private physicians who supervise individual workers and their families will complete the medical team necessary to control tuberculosis in industry.

Here is an unequalled opportunity to do case finding and follow-up among fifty million important citizens and their families, persons among whom the major share of deaths from tuberculosis is occurring in this country. Our principal task now is to extend tubercu-

losis control activities so as to reach the greatest number of workers and their families in the shortest possible time, making full use of all private and public resources. With energetic and concerted action, the final eradication of tuberculosis from the United States is well within our grasp.

THE NEW MOVEMENT IN INDUSTRIAL SANITATION

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I. THE NEGLECTED SECTOR

Most of us do not consider dirt seriously. But we cannot avoid responsibility for sickness, accident and mortality, which stem directly from insanitary behavior. Responsible persons cannot, must not, dodge the issue. In an attempt to achieve high levels of plant cleanliness and orderliness consistent with progressive industrial operations, an exchange of information and an outright comparison of methodology are essential. Men and women of the caliber and authority represented at this meeting are eager and willing to investigate the technics of organization and ready to admit the discrepancies existing between the ideals for working conditions professed by management and the actual state of affairs that meet the eye and nose and touch, reflected in safety and medical records. But their superiors seem indifferent to the obvious failings of their service staffs or pitifully uninformed as to organizational methods. Janitorial staffs, where they exist at all, are utterly untrained and misdirected.

At the plant of one of the largest metal fabricators, where the avowed watchword is cleanliness, there is a staff of literally several thousand janitors working ineffectually with inadequate equipment and under ignorant supervision. In addition to this, the use of unsuitable disinfectants as an adjunct to actual cleaning is profuse and offensive. There is no regard for properly designed cleaning agents, nor have standard procedures been developed. Another large manufacturer, whose principal product is practically "allergic" to dust, has dealt with the problem only as it affects one department. Elsewhere there are ample evidences of bacterial breeding grounds and bacteria-transmitting dirt on poorly designed and neglected surfaces. Apparently the plant cafeteria is so foul that permission to visit it was pointedly sidetracked. Among other industrial leaders sanitation programs are ineffectually discharged because of a profound lack of information, failure to apply simple chemical principles, utter lack of standardization and a lack of administrative control over costs and operations.

The aforementioned plants represent the highest level of industrial leadership encountered. Improvement lies in efforts to use new building materials, new structural designs, up to date lighting and air conditioning, and in relating sanitation to morale and safety.

The second level of sanitation is represented by the service industry—hotels, restaurants, schools, railroads, hospitals, office buildings and the like. Although public pressure exerts some positive influences for the good where management fears bad publicity, the sanitation practices exhibited on this second level are frankly superficial.

In the submarginal class, or third level of sanitation, one encounters all types of establishments. The common heritage of each is dust, waste, ignorance, lack of direction, and friction between employee and employer. It is no wonder that some of the greatest strides in plant improvement have resulted in part from the demands of organized labor. Apparently few other forces are potent enough to rouse management to action. At the same time it must be recognized that labor itself is directly responsible for the most insanitary conditions that exist in the manufacturing world, whether it is the careless fireman who permits his stack to belch forth volumes of sooty fly ash, the dishwasher who glosses over his important job, or the machine operator who permits oil, turnings and personal debris to penetrate or clutter the surfaces of his working area.

II. THE SCOPE OF INDUSTRIAL SANITATION

While safety, hygiene and industrial medicine all are interested in maintaining the worker's health and efficiency as productive factors in industrial operations, industrial sanitation safeguards and conserves human maintenance, protects and maintains the physical elements in the industrial scheme—the machines, the surfaces, the equipment and the products—from the destructive attrition of dirt.

How does it undertake this endless job? Simply by the elimination of dirt from industrial premises, by preventive means wherever possible and by corrective action wherever necessary. Cleaning isn't simply a soap and water attack. It comprises studying the surface to be cleaned, the character of the dirt on it, the chemical composition of the water available, the type "soap" required and personnel. Cleaning is a complex series of physicochemical steps which must be regulated in proper sequence to insure effective results.

III. THE IMPORTANCE OF SANITATION IN INDUSTRY

Some thirty years of national interest in safety have provided us with important yardsticks to measure the seriousness of accidents. Today no plant executive can avoid the responsibilities for production and employee welfare which a safety program inspires. On the other hand, we know little of the costs and inefficiencies due to minor illnesses occasioning absenteeism. Illness last year cost us an estimated 400 million man-days of production! Respiratory ailments may originate in many instances from insanitary conditions, and especially from dust borne bacteria and viruses. Although there has been a conflict of opinion on the virulence of air borne organisms, there is convincing evidence that disease transmission from this source probably outnumbers all others on the industrial scene. Industrial sanitation eliminates dust by prevention or removal. Prevention often implies drastic architectural changes in building design and equipment operation. Removal implies a trained sanitation staff operating on a sound cost basis with proper scheduling and supervision. It implies the maintenance of painted and waxed sloping surfaces wherever possible—for example, on lockers, monitors, shroudings, ledges and window sills. It implies a careful study of illumination to reveal telltale films and deposits. It demands a vigorous research program in chemistry, microbiology, physics and engineering. It requires an administrative organization with adequate facilities and authority to make sanitation an essential part of production.

Occupational diseases have received wide attention because of their outstanding character and direct rela-

tion to working conditions. But minor respiratory diseases and food poisonings attributable to insanitary surroundings and personnel too frequently are neglected.

Food and beverage manufacturers have found it necessary to give constant attention to sanitation as a sort of insurance against product spoilage or because food and drug laws and health codes have demanded it. That they have been largely unsuccessful is due to the fact that there are few persons in the world today trained adequately for the responsibility of building an effective program which will fit into the production schedule and actually advance it.

Harassed managers find that repair and maintenance costs figure seriously in their budgets. If these would only be reduced substantially more capital could be diverted to expanding and improving plant facilities. A sanitation program which works to preserve machines, buildings and equipment can go far in realizing this goal. As yet we cannot estimate the "dirt tax" which we must pay because of abrasion, corrosion and biologic attack within our factories, but we know that it is astronomical! Some of this dirt tax is measured in the replacement of grit eroded surfaces or moisture and mold corroded buildings. Much of the hidden tax may be traced to ineffectual janitor service; it is estimated that there are about one million employees engaged in sanitation—a payroll of perhaps \$40,000,000 per week!

Rodents and insects, both potential victims of proper sanitary practices, far outnumber our human population, eating and spoiling billions of dollars' worth of produce and manufactured goods each year. What they contribute in the way of disease defies estimation!

IV. A MODEL PROGRAM

The first move was to conceive an organized plan and to sell it to plant administrations. Fortunately, the head executives already were aggressive in their demands for sanitation. Without managerial support there would have been long delays in putting plans into execution.

Research and training are the accented factors. Under research may be listed laboratory investigations of ultraviolet disinfection, fungicidal paints, nonskid floor waxes, production belt cleaners, implement fibers, floor and wall materials—process cleaners for equipment to reduce weekly shutdowns for cleaning, mops, detergents, emulsifiers and wetting agents, insect and rodent exterminators and sprays.

The training of sanitation personnel goes hand in hand with research, because new materials and new implements combined with time and motion study necessitate a constant schooling for the janitors. Usually the janitorial staff comprises the flotsam and jetsam of the personnel—the failures, the pensioners, the physically unfit, the lowest wage earners are earmarked for the janitor staff. Occasionally, if an ambitious or a conscientious man comes into this group, his only thought is to be transferred to another department! There is need for an awakening to a sense of pride, awareness and responsibility in this group by progressive education. Next the simple chemistry and physics of cleaning are taught—a lesson in the scientific approach to the daily problem. Skills in dealing with characteristic surfaces are developed—glass, wood, rubber, leather, cement and metal. Implements and machines to ameliorate the arduous aspect of cleaning are introduced. Finally we fix responsibility between the janitors and production operators, so that a minimum of overlap occurs. We prove to the staff that they

are not industrial valets for the remainder of the personnel; we back them up in all reasonable complaints against chronic offenders in other departments. They are supervised by men with training in bacteriology, chemistry, engineering and foremanship, and these in turn are responsible to respective department heads, who are held accountable for clean environs. Coordinating each plant's program is a sanitation director responsible only to top management. He makes regular inspections, designs research and training, issues standard procedures and oversees the purchase, storage and dispensing of supplies.

Such a program may cost as high as \$100,000 a year in a plant with 2,000 employees. Comparable sums, and even greater amounts in some instances, are being spent on our ordinary inefficient janitorial or clean-up departments without adequate return in health, safety and high production schedules.

Obviously each industry—each company—requires a specialized survey and service to determine its specific needs. This calls for trained personnel who can organize a program, educate every one from manager to office boy in sanitation principles and set the wheels in motion for a self-supporting unit. Unfortunately such men and women are not available today.

V. THE NEW MOVEMENT IN INDUSTRIAL SANITATION

There is at present a strong movement toward the recognition of industrial sanitation as a prime ingredient in industrial operations. A composite picture from an encouraging point of view of the plants visited includes these important features:

1. Responsibility for sanitary conditions delegated to full department heads.
2. Architectural designs for simple dust removal.
3. Precipitrons for dust elimination.
4. Use of lintless garments and rags.
5. Regular scheduling of cleaning in production departments.
6. Assignment of adequate sanitation personnel to large washrooms and production areas.
7. Issuance of instruction manuals for new employees.
8. Employment of chemists and supervisors expressly for sanitation programs.

These and other indexes are symptomatic of the forces at work to promote employee welfare through industrial sanitation. Unfortunately they are the exception rather than the rule.

The choice of accepting or rejecting industrial sanitation will not be left only to management. Millions of returning soldiers, men and women, trained and disciplined in personal hygiene and orderly group living will quietly insist on new found benefits.

Organized labor, always alert to improved working conditions, will marshal the gains of the war years as powerful bargaining points in its contracts.

Outside the factory gates we may anticipate acceleration in city planning. Injunctions against public nuisances—fumes, fly ash, noise, stream pollution—held in abeyance during the war years, will be prosecuted vigorously.

The building of war plants has been achieved on an architectural level unknown during World War I. The initiative of outstanding industrialists has espoused the cause of plant and employee sanitation. The "Better America" program of the National Association of Manufacturers embodies important standards of health and physical design in the world of production. Even the layman, turning the pages of his favorite periodical, cannot but be impressed with postwar promise of func-

tional esthetics in the design of refrigerators, washers, kitchens and the like.

Where can we secure the technical information and necessary trained personnel? In Louisville a school for industrial sanitationists is being established, with curriculums founded on current research and applied through up to date methods of instruction. Textbooks of theory and practice will be made available to industry at large. An ambitious research program will provide basic and specific information through an independent *Journal of Industrial Sanitation*. The first National Congress of Industrial Sanitation will be held in Louisville within a few months and attendance of representatives from many of the major manufacturing industries has been assured. We must have the aid of the sanitary products industry in the study and application of more effective cleaning agents, more versatile equipment and advanced methodology. From architecture and engineering we seek new building design to exclude dirt.

We hope for adequate recognition and support from industrial hygiene so that it will redouble its efforts to relate individual health to environment in terms of sanitation in order that we may best determine our points of attack.

THE DETECTION AND TREATMENT OF NUTRITIONAL DEFICIENCY DISEASES

AMONG INDUSTRIAL WORKERS (A PROGRESS REPORT)

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BIRMINGHAM, ALA.

The shortage of manpower has stimulated increased interest in the health and welfare of the industrial worker, with the result that never before have so many physicians, nutritionists and nurses directed their efforts toward the problems of nutrition in industry. Already much has been accomplished in initiating and improving implant feeding of workers and in educating the worker and his family as to what constitutes a satisfactory diet.¹ The results to date are gratifying, but much is still to be done.

My interest in nutritional rehabilitation began when I was working at the University Hospitals in Cleveland in 1930. There, after carefully studying 278 patients with deficiency diseases, I noticed that 17 of them had the endemic type of the disease—that is, they developed their disease from ingesting an inadequate diet in contrast to other persons in our series who had predisposing or precipitating causes such as organic disease or chronic alcoholic addiction. After the 17 patients were discharged from the hospital we made frequent visits to their homes and they made frequent visits to the clinic. Most of them returned to work within a period of six months and were able to earn enough money to buy the diet we had recommended for themselves and

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The tremendously heavy expenses of the general nutrition study have been borne by grants from a number of philanthropic persons, foundations and commercial concerns, without which this study could not have been made. The necessary expense of frequent observations of these patients in their homes and in the clinic over a long period of time has been defrayed by grants from the John and Mary R. Markle Foundation and the Upjohn Company.

1. Food and Nutrition of Industrial Workers in Wartime, National Research Council, Reprint and Circular Series, number 110, Washington, D. C., April 1942. Goodhart, R. S. The Nutrition of War Workers, J. Am. Dietet. A. 19: 95-97 (Feb.) 1943. Planning Meals for Industrial Workers, United States Department of Agriculture, Food Distribution Administration, Nutrition and Food Conservation Branch, NFA-2, December 1943. Manual of Industrial Nutrition.

In treating thiamine, niacin, riboflavin and ascorbic acid deficiency, we give daily a basic formula containing 10 mg. of thiamine, 50 mg. of niacin, 5 mg. of riboflavin and 75 mg. of ascorbic acid. In the presence of a pre-dominating deficiency we add more of the vitamin

[illegible]

Dried brewers' yeast powder and liver extract are excellent therapeutic agents for the treatment of diseases arising from B complex deficiencies. They are

natural sources of niacin amide, thiamine, riboflavin, pantothenic acid, choline, biotin, amino acids, enzymes, minerals and probably many as yet unknown nutritional factors. From 2 to 6 ounces of yeast or liver extract administered orally is effective. Liver extract can be injected parenterally.

The application of these recommendations is effective in the average case. There are, however, occasional cases which are complicated by so many predisposing factors that highly individualized therapy must be applied. This is illustrated by the 3 following case histories. Case 1 illustrates how accurate diagnosis followed by specific therapy relieved dietary deficiencies in dependents of a skilled workman, thus enabling him to return to his work as a mechanic. Case 2 is illustrative of a man who had always had an excellent diet but who developed deficiency diseases as a result of poor absorption from the alimentary tract and eventually became so ill he could not work. Parenteral injections of the needed nutrients enabled this man to continue his work in a steel mill. Case 3 is that of a man who had eaten a poor diet most of his life and for many years had symptoms which could not be diagnosed as a dietary deficiency disease. When, by means of intensive and controlled studies, it was established that three distinct syndromes existed simultaneously, we were able to apply satisfactory treatment with the result that he now is in excellent health and holds a good position.

CASE 1.—This illustrates how proper treatment of deficiency diseases in a mother and infant allowed the father, a skilled mechanic, to return to work.

C. B., a white boy aged 10 months, was brought to the Nutrition Clinic of the Hillman Hospital, Birmingham, Ala., on July 21, 1943 by his father. The family consisted of Mr. B., aged 38, his 36 year old wife, a 5 year old child and the 10 month old baby. Mr. B. had graduated from high school and from a trade school and had been a skilled mechanic for many years. He had always had employment and a good income except



Fig. 3 (case 1).—Scurbic gums. Note that the gums around the upper incisors are extremely swollen and coarse in texture. The swollen gum tissue almost covers the crowns of the incisors.

during the depression years, when he was unable to obtain regular work. During the depression he and his wife lived with his father, who was a tool maker and also was unable to obtain regular employment. From occasional earnings and by combining their savings, they were able to manage without asking for relief. At times, however, they did not have proper food, particularly Mrs. B., who worried so much about their

financial problems that she frequently did not eat even when food was available. In 1938, following her first pregnancy, she became ill with diarrhea, a sore mouth and a sore tongue. This happened at a time when Mr. B. was working regularly again and had a good income, and a good diet was available, but Mrs. B.'s appetite was poor and she could eat but little.



Fig. 4 (case 1).—Appearance one week later. The baby received 100 mg. of ascorbic acid three times a day during this period. Note disappearance of the swelling of the gums. The crowns of the incisors now appear of normal length and the mucosa is healthy.

Since this time the diarrhea and sore mouth and tongue had recurred each spring, at which times she was so weak that it was necessary for her to stay in bed two or three weeks. The first child was breast fed for a year. He has always had a good appetite and has been in excellent health. Following the birth of the second child, Mrs. B.'s appetite remained poor, she did not regain her strength, and she had stayed in bed much of the time since the child was born. Frequently it had been necessary for Mr. B. to stay home to care for her and the two children, although his services were badly needed in the plant in which he worked.

C. B., the 10 month old child, was breast fed until he was 1 month old, when the mother's supply of milk became so scanty she weaned him and started him on a formula of evaporated milk, Karo syrup and water. Two weeks later she began giving him 6 drops of cod liver oil daily, and when he was 4 months old she added the juice of 1 orange, 1 tablespoon of strained vegetable, 1 tablespoon of cereal and the yolk of an egg each day. The child had a good appetite and took his food well until he was 5 months old, when he developed bronchitis, lost his appetite and became a feeding problem. He invariably refused the cod liver oil, orange juice, vegetable and egg yolk but usually took his formula and cereal. His mother made no attempt to keep him on a regular feeding schedule or to persuade him to take other foods but allowed him to have as much of his formula as he wished at any time he would take it. When he was 9 months old he began crying and fretting almost constantly and screamed when his mother tried to feed him. She noticed that his mouth was very red and sore, so she took him to a physician who prescribed a mouth wash, but his mouth and tongue became worse. About this time she noticed that he could no longer pull himself up into a sitting position in his crib or let himself down after she had pulled him up. She was so worried about the child that she could not eat or sleep and became too ill to take care of him. The father, who until this time had missed only an occasional day's work, now found it necessary to stay at home to take care of his wife and 2 children. For two weeks he consulted various physicians, but the child steadily became worse. Finally it was decided to bring the child to the hospital.

The child, who was well developed, was extremely irritable and constantly fretted and cried. His gums were purplish, bled easily and were extremely edematous, especially labial to the four upper incisors, which were almost covered with swollen mucosa (fig. 3). The lips were very red from the line of

closure to the mucobuccal fold. The inside surface of both upper and lower lips was very red, and there were many fine granules inside the upper lip. The soft palate was red and vascular. The tongue was fiery red along the sides and at the tip, and there was an ulcer 2 mm. in diameter on the under surface of the tongue at the midline. The long bones were so sensitive that even a light touch caused the child to scream. The remainder of the physical examination was negative.

Blood examination revealed 3.5 million red blood cells, hemoglobin 52 per cent, white blood cells 6,100 (polymorphonuclears 49 per cent, lymphocytes 45 per cent, eosinophils 3 per cent, monocytes 3 per cent). Repeated tourniquet tests were strongly positive. X-ray examination showed evidence of subperiosteal hemorrhages.

The child was given 100 mg. of ascorbic acid three times a day. By the third day the swelling of the gums had subsided to such an extent that the four upper incisors were clearly visible and the gums were less purple. By this time the child was taking the food prescribed for him and was much less irritable. He no longer fretted and cried or screamed when touched. On the fifth day all the swelling of the gums had disappeared and they appeared normal in color (fig. 4); the granules inside the lip had disappeared, as had the ulcer under the tongue. The pellagrous glossitis and the redness of the soft palate were still obvious. At this time he was given 50 mg. of niacin amide three times a day. By the ninth day all the oral lesions had disappeared, and he appeared perfectly normal and healthy. The niacin amide was discontinued on the tenth hospital day, and he was discharged on the following day. The mother was instructed in regard to his diet and told to continue the ascorbic acid for four days and then bring him to the clinic. When she brought him in, he appeared to be in excellent health. She said he had eaten all the food offered, slept well and seldom cried. The ascorbic acid was discontinued, and she was told to give him the juice of 1 orange and 3 tablespoons of tomato juice daily. Since this time the child has been brought to the clinic once a week for examination. He has had no recurrence of symptoms and at the present time is in excellent health.

In keeping with our usual policy of examining the entire family, we suggested that the mother come to the clinic. This was done the day after the baby was admitted to the hospital. The woman was extremely weak, nervous and apprehensive. Diagnostic pellagrous glossitis was obvious. Her condition was such that we decided to treat her in her home and to have her report triweekly to the clinic for observation. Accordingly, she was given 100 mg. of niacin amide four times a day and advised to eat a liberal and well balanced diet. On the third day after treatment was initiated the pellagrous glossitis had disappeared and likewise the diarrhea, which had persisted for over a month. By this time she was having no difficulty eating the food prescribed, and she felt so much better that she insisted on her husband returning to work. When the baby was discharged from the hospital, her health was such that she could take adequate care of both her children and her household.

Three days after the baby was admitted to the hospital Mr. B. returned to work, and he has not missed a day's work since that time.

CASE 2.—This illustrates the development of pellagra in a steel mill worker despite the fact that he always had eaten an adequate diet. After careful study had established the fact that his deficiency arose from failure of absorption of nutrients, we devised methods of therapy which enabled him to continue his work.

G. L., a steel mill worker aged 43, was referred by his physician to the Nutrition Clinic of the Hillman Hospital in March 1936 because of severe pellagrous glossitis, stomatitis and dermatitis. In keeping with our usual policy of treating nutritive failure, we initiated therapy promptly and began a thorough study of the patient and his family.

We learned that this man had been employed at the same steel mill for twenty-three years and was considered an unusually skilled and reliable workman. His income was adequate. He had a bank account and owned his home and a small amount of land. He raised rabbits and chickens and grew all the vegetables his family could use. The whole family,

including Mr. L., had always eaten a good diet, and his wife and four children were in excellent health. The patient also had been in excellent health until about March 1, 1933, when his mouth and tongue became sore. At this time he refused to eat anything but soup and coffee, and his wife said she noticed that, in contrast to his usual cheerful self, he seemed irritable and acted peculiarly. He frequently stayed up all night but insisted on going to work the next day, though he often said he was "too tired to move." By the end of two weeks he had lost 10 pounds (4.5 Kg.) and his wife persuaded him to stop work. He immediately "took to his bed," and she gave him daily 1 quart of milk, 6 eggs, a large bowl of soup, $\frac{1}{4}$ pound of ground beef and 2 servings of cereal. After ten days on this diet and rest in bed, he was much better and went back to work. In spite of the fact that he continued to eat a good diet, he had six recurrences of sore mouth and tongue between 1933 and the time we saw him in the spring of 1936. Early in February of 1936 his mouth and tongue became worse than they ever before had been, and he noticed for the first time a "rash" on his forearms. He again went to bed but this time refused the food which his wife prepared for him. He was deeply depressed and said that he could not live. His wife became so alarmed over his condition that she called a physician, who referred him to the hospital.

He was admitted to the hospital on March 16, 1936. He was well developed though underweight, and was depressed, unresponsive and at times uncooperative. He was listless and could not concentrate. The skin over his body was dry, and he had bilateral pellagrous dermatitis extending from the wrist to the elbow on both forearms. The lesions were reddened and well demarcated from the surrounding skin. The tongue was fiery red and showed small ulcerations. The oral mucous membranes were reddened and swollen. He had generalized muscular weakness, tremors and nystagmus. The tendon reflexes were hyperactive, and vibratory sense over the ankles was absent. He had stocking type of light touch anesthesia. The remainder of the physical examination was negative.

Laboratory findings: the examination revealed the Beckh-Ellinger-Spies⁵ test was strongly positive, red blood cell count 4.4 million, hemoglobin 85 per cent, white blood cell count 13,500. Gastric analysis showed no free hydrochloric acid even after histamine stimulation. Total acidity was 8 degrees. Barium enema and gastrointestinal series were negative on three examinations.

The patient was given a high protein, high vitamin 4,000 calory diet supplemented with 3 ounces of dried brewers' yeast powder daily. Every detail of his food intake was carefully supervised by the dietitians and nurses. For the first two days he had difficulty in taking the food and yeast but was persuaded to take all of both. By the third day improvement was under way, his desire for food had returned, the glossitis and stomatitis were less pronounced, and the dermatitis had begun to fade. He gained 12 pounds (5.4 Kg.) and appeared to be in excellent health when discharged from the hospital twelve days after admission. Some of the most striking changes were that he was very cooperative, could think clearly and was extremely grateful for his improved health. Both he and his wife were told that he must eat each day a diet which included 1 quart of milk, 4 eggs, $\frac{1}{2}$ pound of lean meat, 2 servings of fresh vegetables, 2 servings of fresh fruit, 6 slices of whole wheat bread, a large serving of cereal and 6 tablespoons of butter. In addition, he could eat any other foods he desired. He was told also that he must come to the clinic once a week for observation.

Mr. L. returned to work the day after his discharge from the hospital. According to his wife and children, he ate all the food prescribed and sometimes much more. For two weeks he felt fine; then the symptoms began to return slowly. We had frequently visited him in his home and examined him in the clinic many times during this period, and we were reasonably certain that he had eaten the prescribed diet, which was more than adequate for normal requirements. Thus we were convinced that his disease arose either from failure to absorb or utilize food or from increased food requirements. Accord-

5. Beckh, W.; Ellinger, P., and Spies, T. D.: Porphyrinuria in Pellagra. *Quart. J. Med.* 6: 305-319 (July) 1937.

ingly, it was decided to readmit him to the hospital for carefully controlled study to check this conviction. On May 1, 1936 he was admitted to the hospital, a thoroughly discouraged man but with the complete understanding that he would eat all the food we gave him. From the day of admission he was under the constant supervision of either myself or Dr. Austin B. Chinn, Miss Ann Van Blaricom, R.N., or Miss Jean Grant, dietitian. He was given a diet of 150 Gm. of lean beef, 4 eggs, 1 quart of milk, 200 Gm. of turnip greens, 100 Gm. of tomato, 200 Gm. of potato, 40 Gm. of black-eyed peas (dry weight), 150 Gm. of orange, 100 Gm. of prunes, 180 Gm. of whole wheat bread, 30 Gm. of oatmeal (dry weight), 90 Gm. of butter and 60 Gm. of sugar. This diet, which was weighed and prepared by a dietitian, remained constant for three weeks. The nurse always served his meals, remained with him while he ate them and carefully checked his food intake. We were certain that he ate all the food offered every day. While on this diet he developed mild but definite pellagrous glossitis and stomatitis and lost 8 pounds (3.6 Kg.). With the exception of frequent positive B. E. S. tests, the laboratory findings were negative, as they had been during the previous period of hospitalization. His condition had become so much worse that at the beginning of the fourth week he was given 3 ounces of dried brewers' yeast powder and an injection of 10 cc. of liver extract daily. Within forty-eight hours he felt better, and within seventy-two hours his mouth was normal. This therapy was continued for a week. At the end of this time he had gained 7 pounds (3.2 Kg.) and felt that he had regained his strength. He was discharged from the hospital and returned to work the following day. Throughout 1936 and 1937 he ate an excellent diet supplemented with 3 ounces of dried brewers' yeast powder daily. Despite this he had eight recurrences of pellagrous glossitis and stomatitis. With each relapse his symptoms were more severe and a cure more difficult to effect. Accordingly, it was decided that he was probably one of those rare persons who have absorption difficulties. Combined parenteral injections of niacin amide, thiamine and liver extract were initiated. Since this time he frequently has been given injections of riboflavin. He has received injections of the vitamins and liver extract at least once a month and has continued to eat an unusually high caloric diet. His health has been such that he has been able to work for the past five years, missing only four days when he had a severe cold. Despite the fact that these findings indicate that he can be kept at work, clinical judgment indicates that he is always bordering on relapse.

CASE 3.—This is illustrative of a group of persons who have ill health and vague symptoms for a long period of time before a specific diagnosis can be made. After studying this patient for years, we were able to make an accurate diagnosis of three distinct deficiency disease syndromes acting simultaneously to interfere with his health and strength. Specific treatment persistently applied resulted in his being able to return to work. The case is so complicated that for ease of description we have condensed several hundred pages of notes on our laboratory and clinical observations, which have extended over seven years, and have divided them into nine interrelated parts.

1. J. T., a white man aged 48, had never had any serious illnesses prior to 1936 but had never been in good health. His mother had died of pellagra soon after his birth. Otherwise the family history was irrelevant. From the time he was 18 years of age he had worked intermittently in the coal mines. Frequently, however, he had not been well enough to do a full day's work, with the result that unless work was plentiful and miners scarce he often was unemployed. When seen by us in 1936 his wife and two children appeared to be in good health. They had always eaten a better diet than Mr. T., who, as long as he could remember, had been "finicky" about his food. His diet had consisted chiefly of cornmeal, molasses, potatoes, bread, spaghetti and occasionally beans, peas and eggs. He thoroughly disliked lean meat and liver and for this reason had never eaten them, and he had seldom eaten chicken or fish.

2. In 1936 a physician referred him to the Hillman Hospital for treatment. At this time his only complaints were weakness, burning of the stomach and dizzy spells. Following bed rest and a good diet, he improved and was discharged two weeks

after admission. Although it was realized that his symptoms might have arisen from his poor diet, no specific diagnosis was made at this time.

3. After he returned home he resumed his old food habits and gradually lost weight and strength. The dizzy spells and burning of the stomach returned, and he developed diarrhea and a sore mouth and tongue. In November 1937 he was readmitted to the Hillman Hospital with severe bloody diarrhea. No parasites were found in the stools. Three gastrointestinal series, a barium enema and sigmoidoscopy were negative. The red blood count was 3.5 million, hemoglobin 70 per cent. The diarrhea ceased following the administration of paregoric. After two weeks in bed and on a good diet his strength returned. The dizziness, burning of the stomach and soreness of the mouth and tongue promptly disappeared. Again no specific diagnosis was made. He was discharged from the hospital and urged to eat a good diet at home.

4. During the following year and a half he was able to work very little and his diet remained poor. In June 1939 he was readmitted to the Hillman Hospital complaining of weakness, diarrhea, dizziness and burning of the mouth and tongue. It was obvious that he had a severe anemia. The average of ten red blood cell counts was 1.6 million and of ten hemoglobin determinations 48 per cent. The gastric juice on three examinations showed no free hydrochloric acid even after histamine injection. No parasites were found in the stools. A gastrointestinal series and barium enema were again negative. Although a diagnosis of Addisonian pernicious anemia was seriously considered, our knowledge of his previous illness led us to believe that he probably had an extrinsic factor deficiency. Parenteral injection of liver extract was followed by a rise in the red blood cell count and hemoglobin, increased appetite and food intake, and disappearance of all his other symptoms. After two months on a good diet and liver extract, he was discharged much improved.

5. After he was discharged from the hospital he felt so much better that he did not bother to come back to the clinic for treatment and resumed his usual inadequate diet. In February 1940 he was readmitted to the Hillman Hospital with a recurrence of his former symptoms and, in addition, he complained of pains in all his muscles and numbness of the hands. He stated that he felt as if he was "perishing away." Examination showed severe pellagrous glossitis, stomatitis and pharyngitis. The strength in all the extremities was fairly good. Sensation was normal except in the right leg between the knee and ankle, which he said felt "dead." Vibratory sensation was poor in the ankles and normal in the upper extremities. There was moderate edema of the feet and ankles. Examination of the urine showed a positive Beckh-Ellinger-Spies⁶ test and a content of nicotinic acid and thiamine much below normal. The stools were negative for parasites. The gastrointestinal series and barium enema were negative. Repeated gastric analyses showed an average of 27 degrees of free acid after histamine (this return of hydrochloric acid to the gastric juice, which was the result of treatment the previous year, is not an infrequent finding following therapy in this type of case). He was given a high caloric, high protein, high vitamin diet, 100 mg. of niacin amide, and 20 mg. of thiamine three times a day. The pellagrous glossitis, stomatitis and pharyngitis disappeared within two days, as did the edema; the pain in his muscles was relieved within a week. He was then given 5 cc. of liver extract intramuscularly every four days for four weeks. At the end of this time he had improved greatly. We wished him to remain in the hospital for further treatment, but he refused and was discharged.

6. After returning home he again refused to come to the clinic for observation and returned to his old diet. In July 1940, after having severe diarrhea for several weeks, he asked to be admitted to the hospital. The symptoms of nicotinic acid and thiamine deficiency and the laboratory tests for these deficiencies were essentially the same as they were at the time of his previous admission. He was so pale, it was obvious that he had severe anemia. His red blood count was 2 million, hemoglobin 60 per cent. X-ray examinations of the stomach and intestine were negative, and gastric analyses showed an average of 17 degrees of free hydrochloric acid. Bone marrow

studies showed typical megaloblasts with maturation arrest. By this time we believed that he had extrinsic factor deficiency and decided to test this hypothesis, since he was more cooperative than he had been and agreed to stay in the hospital this time until he was well. Accordingly, he was given a diet similar to the inadequate diet he had eaten at home and no



Fig. 5 (case 3).—Appearance of patient immediately after relief of pellagrous glossitis with niacin amide. Note that he is still emaciated, and his general appearance is to be contrasted with figure 6. Treatment for the macrocytic anemia was started the day this picture was taken.

medication was given to arrest the diarrhea. Each morning 75 cc. of gastric juice was taken from his stomach, incubated with 200 Gm. of ground raw beef and fed to a person with proved Addisonian anemia in relapse. A typical rise in reticulocyte, hemoglobin and red blood cell count of the patient with Addisonian anemia on the fifth day indicated that the gastric juice of J. T. contained the intrinsic factor of Castle.⁶ J. T. was then given a high caloric diet, niacin amide and thiamine hydrochloride as on his previous admission. After a week on this therapy all symptoms of nicotinic acid and thiamine deficiency had disappeared but the blood findings had not changed. He was given 200 Gm. of ground raw beef daily for ten days. This produced a reticulocyte response and a subsequent rise in the red blood cell count and hemoglobin.

7. At this time the complete observations were reviewed by all the physicians who had taken care of the patient. It was unanimously agreed that the diagnosis of pellagra, thiamine deficiency and macrocytic anemia was justified. The fact that he had eaten a poor diet, especially deficient in animal proteins, over a period of years predisposed him to these diseases, but the diagnosis was made on the basis of our clinical and laboratory findings. Although pellagrous dermatitis was never seen, the diagnosis of pellagra was obvious from the appearance of the glossitis and stomatitis, which subsequently responded dra-

matically to the administration of nicotinic acid. The diagnosis of beriberi was made on the basis of nutritional polyneuritis occurring in a person who had a low thiamine intake for a long period of time. Excessive tenderness on pressure over the nerves disappeared six hours after thiamine was administered, and the tendon reflexes returned to normal after thiamine had been administered for a week. The diagnosis of macrocytic anemia was more difficult, but this diagnosis satisfied all the physicians concerned when all the following findings were considered: (a) macrocytic anemia with a high color index, (b) bone marrow smear showing typical megaloblast arrest, (c) chronic diarrhea, (d) repeated negative x-ray studies of the alimentary tract, (e) achlorhydria with return of free acid after treatment, (f) demonstration of the presence of the intrinsic factor of Castle in the gastric juice, (g) his response to ground raw beef without gastric juice and (h) characteristic hemopoietic response to parenteral liver extract.

8. After his last hospitalization the patient moved to a nearby town where he had found work in the mines. Although he had been unable to obtain regularly the diet we had prescribed, when he returned for examination in June 1941 his blood picture was normal and he felt well. We did not see him again until February 1942. At this time he told us that he had continued to eat a good diet and had felt well until September, when the mines closed. He had been unable to obtain work, and his diet became poorer than it ever had been. For four months he had seldom had anything but potatoes, spaghetti and bread. In December he developed very severe diarrhea. Within three weeks his mouth and tongue were so sore he could take but little food, and he had become so weak and had such severe pain in his legs that he was unable to get out of bed. Finally he asked a neighbor to bring him to the hospital



Fig. 6 (case 3).—Appearance at time of last discharge from hospital, showing a vigorous appearing man. He was entirely free from symptoms and was anxious to work. For full appreciation of changes this picture should be contrasted with figure 5.

for treatment, and he was readmitted to the Hillman Hospital in February 1942. The average of five red blood counts was 1.9 million and of five hemoglobin determinations 55 per cent. The glossitis and stomatitis and the burning and tenderness of the feet and legs were more severe than they had ever been. He was given an inadequate diet similar to the one he had

6. A detailed description of this method of testing for the intrinsic factor of Castle in the gastric juice of pellagrins is given by Spies, T. D.; Payne, W., and Chinn, A. B.: A Note on the Relationship of Pellagra to Pernicious Anemia, *Proc. Soc. Exper. Biol. & Med.* 32: 328-330 (Nov.) 1934.

eaten at home, supplemented with 100 mg. of niacin amide and 20 mg. of thiamine three times a day until all symptoms of pellagra and beriberi had disappeared. Even though he had previously had a good hematologic response when he was given 200 Gm. of ground raw beef daily, we wished to test further his ability to absorb from the intestinal tract. Accordingly, he was given 3 teaspoons of a preparation of liver extract twice a day. The reticulocyte count rose from 0.4 to 12.8 per cent, and this was followed by a characteristic rise in the red blood cell count and hemoglobin. He was then given a high caloric, high protein, high vitamin diet. His appetite became enormous. He ate daily from 7,000 to 9,000 calories. His weight increased from 113 to 161 pounds (from 51 to 73 Kg., figs. 5 and 6). After four months in the hospital he was discharged and returned to work.

9. Since his last discharge from the hospital he has returned to the clinic regularly for observation. When we last saw him his red blood cell count was 5 million and hemoglobin 105 per cent. He is working in a dairy making enough money to support his wife and family, and they are all eating a good diet. He volunteered that he has learned his lesson and will continue to follow our instructions in regard to his diet.

COMMENTS ON THESE THREE CASES IN THE LIGHT OF THE USUAL RECOMMENDATIONS FOR INDUSTRIAL WORKERS

In the *Manual of Industrial Nutrition*⁷ the following recommendations are made:

Each meal served within the plant should supply the worker with at least one third of his daily dietary requirements.

A la carte menus are wasteful of food, serve to increase the cost of food to the employees and increase the serving time. They do not encourage the employee to select a nutritionally complete lunch. Workers will complain more if their meals lack sufficient variety from day to day than they will over a limited choice of any one meal.

The midshift meal service should offer the worker a limited choice of nutritionally satisfactory lunches, with as much variety, from day to day, as possible.

A cold lunch can be as nutritionally adequate as a hot lunch.

Special lunches, emphasizing the use of alternate foods, can be offered at slightly lower than prevailing prices to increase their acceptability. At least one such lunch should be offered at every midshift meal period.

Foods used as alternates for rationed items should be true alternates and not substitutes. For example, cheese, fish, poultry, the variety meats and certain dried beans and legumes can be considered truly to be alternates, whereas spaghetti and macaroni cannot be so considered.

Milk and other protective foods might be offered at or below cost to encourage their consumption in preference to nonprotective foods such as pastry or soft drinks.

All white bread and white flour used should be of the enriched variety.

All margarine should be fortified with vitamin A.

Table salt should be iodized.

Any general plans which have been made for improving the nutritional status of workers will do much to improve their health. The industrial physician has a difficult task ahead. He has many sick persons to see. In most instances he is not given enough help to study carefully the individual patient, yet intensive study is required before the physician can justifiably diagnose nutritive failure.

It must be realized that nutritive therapy is not a panacea for all weak, listless but willing workers and that it requires careful study to select the persons whose complaints arise solely from nutritional deficiencies. The more accurate the diagnosis and the more persistent the therapy, the more certain is the physician to restore

health to his patient and to enable him to work efficiently.

It is unfortunate that extravagant and unsupported claims for vitamins are the ones that are most widely advertised. It is also unfortunate that in the minds of many persons the use of various supplemental preparations conflicts with the aim of securing the best possible dietary. It goes without saying that an adequate dietary is of primary importance in maintaining health and in treating deficiency diseases. Nevertheless, in many cases a well selected diet does not assure adequate nutrition. Synthetic substances and concentrates are often helpful in shortening convalescence and in many cases may prove to be life saving.

SUMMARY AND CONCLUSIONS

1. The results of this study and of others that I have made or am making indicate that when endemic deficiency diseases occur in individual members of a family it is wise to study the family as a whole. The illness of the wage earner often results in a restriction of the family diet. Illness in the family frequently keeps the wage earner away from work so that he cannot earn enough money to buy proper food. Unpublished observations on many families indicate that their diets are often good immediately following pay day but tend to become poorer as the funds diminish. Insurance, illness and unexpected expenses seriously affect the quality of the food intake.

2. The very essence of our studies leads us to direct our efforts toward an early and accurate diagnosis and the application of the following general principles of therapy: a liberal amount of a well balanced diet, symptomatic treatment of coexisting diseases, removal of conditions causing excessive requirements for the essential nutrients and the judicious administration of adequate amounts of therapeutic substances such as dried brewers' yeast powder, liver extract and vitamins in the form of synthetic substances or concentrates or minerals.

3. Improvement in the health and nutritional status of many workers has resulted from the application of general plans such as the one described in this paper. Most persons advocating such plans, however, do not fully appreciate that meticulous clinical study is needed before a diagnosis of nutritional deficiency diseases is justified. Accordingly, I have discussed methods of diagnosis and therapy which are effective in the average case as well as cases in which benefit will not be obtained until highly individualized methods of diagnosis and therapy are instituted. The necessity of such specialized methods of therapy is illustrated by the 3 cases described. Case 1 illustrates how accurate diagnosis and specific therapy relieved dietary deficiency diseases in the wife and child of a skilled mechanic, thus enabling him to return to work. Case 2 illustrates the development of nutritional deficiencies due to lack of adequate absorption from the alimentary tract; parenteral injections of the needed nutrients are enabling the patient to continue his work in a steel mill. Case 3 illustrates the gradual development of deficiency diseases in a man who had eaten a poor diet all his life; intensive, controlled studies established that he had three distinct syndromes; proper therapy restored his health, and he is back at work.

4. These findings indicate that the shortage of man power can be combated to some extent by physicians, nutritionists and nurses directing their efforts toward the problems of nutrition in industry.

7. *Manual of Industrial Nutrition*, United States Department of Agriculture, Food Distribution Administration, Nutrition and Food Conservation Branch, June 1943.

A VISUAL SERVICE FOR SMALL MANUFACTURING PLANTS

AIMED AT THE PREVENTION OF BLINDNESS BY
THE ELIMINATION OF INDUSTRIAL ACCIDENTS

HARRY S. GRADLE, M.D.
CHICAGO

According to the best figures available, approximately 15 per cent of the blindness in the United States is the result of accidents, fully four fifths of which occur in the industries. Such industrial accidents may be due to poor vision on the part of the employee, to inadequate illumination so that visual hazards are not seen, or to the thousand and one other dangers.

This problem of blindness due to industrial accidents has never been approached in a methodical manner, although the majority of the larger industrial concerns maintain a medical and a safety department which is more or less efficient in this matter. However, in the smaller plants whose size precludes the maintenance of a medical staff or of a department of safety the visual hazards receive but little notice. Consequently the Illinois Society for the Prevention of Blindness deemed it a part of its duty to try to aid the smaller manufacturing plants in Illinois in the elimination of the various visual hazards that all too frequently lead to blindness.

Therefore a service was devised and is now in operation, a service primarily for the smaller manufacturing plants. By that is meant the plants with from a score up to 700 or 800 employees. This service operates in the following manner:

1. The management is contacted and given full details of the service and, if it is accepted, a contract is signed.
2. A "tester" contacts the various foremen and arranges a routing schedule whereby the employees are sent to the selected place in the plant on such a time schedule that there is a minimum interference with the normal operation of the plant.
3. At the appointed time the tester conducts a visual survey of each employee, using the new Bausch and Lomb orthorater. With this instrument is measured:
 - (a) The visual acuity of each eye for distance, without glasses.
 - (b) The visual acuity of each eye for distance with the employee's glasses.
 - (c) The visual acuity of the two eyes combined for near, without glasses.
 - (d) The visual acuity of the two eyes combined for near, with glasses.
 - (e) Muscle balance.
 - (f) Depth perception.
 - (g) Color sense.

This is all recorded on a special form on which is noted the employee's name, age, sex, occupation and department of the plant in which he works.

4. While the visual survey is being conducted, a trained safety engineer makes a survey of the entire plant, including the offices, in which is taken into account:

- (a) The general illumination.
- (b) The illumination of individual pieces of work.

(c) The illumination both by daylight and at night.

(d) The visual hazards that exist in each portion of every operation of the plant, from the standpoint of flying particles, dangerous obstructions, dust, and so on.

In this is considered not only the operator of every individual machine but also the safety of passers-by.

5. The report of the vision tester is then analyzed from a medical standpoint, department by department, and is submitted to the management. In that are recorded the names of the employees who require correction of visual defects, who have a manifest ocular disease, who have a pronounced imbalance of ocular muscles, who are deficient in color sense or who are deficient in depth perception. The urgent cases are starred.

The average time required per employee for this visual survey is eleven minutes; in the office force with higher intelligence, only about seven minutes is needed per individual, whereas in the laboring class, often with a deficient knowledge of English, up to eighteen minutes is necessary. In the medical report the management is urged to see that the employees who have visual deficiencies seek eye attention and undergo the necessary correction. The original plans for this service included refraction by a certificated ophthalmologist at the plant itself; but this had to be abandoned because of the shortage of eye physicians. Another proposed phase was to have a reputable optical concern fill those prescriptions, either for glasses or for protective goggles, at the plant. But here too the manpower shortage has necessitated abandonment of that part of the program.

Attached to the medical report is a list of members of the Chicago Ophthalmological Society who are not in military service. The management is urged to avail themselves of the services of any of the men who are therein listed.

6. The report of the safety engineer accompanies the medical report. In it are described the areas of insufficient illumination, together with recommendations as to the type of fixture and the wattage necessary to correct the defect. In it are described the various visual hazards from operations within the plant and the type of protection requisite to eliminate such hazards. Those may be in the nature of a machine guard, protective screen, goggles or whatever the exigencies of the situation may demand. These also are prepared department by department.

7. The society also offers the services of members of its staff to promulgate a safety campaign among the employees of the plant. That campaign is in the nature of posters, brochures on eye safety, moving pictures of industrial accidents and their consequences, first aid directions, and the like.

For these combined services the management pays the society \$1 per employee. This, of course, does not cover the cost, and a special fund has been earmarked in the treasury of the society to carry this on as requisite. As time progresses the various plants will be visited again by members of the staff, and further endeavors will be made to see that the managements comply with the recommendations of both medical and engineering reports.

Although this service is new, it is believed that much will be accomplished in the prevention of blindness from industrial accidents.

58 East Washington Street.

MEDICINE, LABOR AND INDUSTRY JOIN HANDS IN PHILADELPHIA

CHARLES-FRANCIS LONG, M.D.

Chairman, Commission on Industrial Health and Hygiene,
Medical Society of the State of Pennsylvania

PHILADELPHIA

In a paper before the Section on Preventive and Industrial Medicine and Public Health of the American Medical Association in New York in June 1940 I projected the fields of activity for state and county medical society committees on industrial health. At that time I said "We aim to assure the best possible health to every worker in every industry within the state. This must be gradually approached by a coordinated program between the state and county committees and industrial organizations and labor groups." This presentation is an interim report. It details the methods used in Philadelphia to coordinate our program and describes the results.

It was apparent from the beginning that the medical profession would face an impossible task were it to handle the problem of medical service to small plants single handed. Consequently we worked on the philosophy that all parties in interest—management, labor and the medical profession—should rightfully participate in the establishment of such services. It was useless to begin with the major endeavor until we of the profession made certain preparations. We needed to know the size of the potential demand. We also needed to have an available supply of physicians who knew the rudiments of industrial health and were not already employed.

The Committee on Industrial Health of the Philadelphia County Medical Society promptly attacked these two phases. Under the able direction of the appropriate professors from the University of Pennsylvania and the Woman's Medical College a course in industrial health was established, meeting in the auditorium of the building of the Medical Society. The course consisted of forty-eight hours' instruction, was broad and introductory in scope, and had a number of extracurricular field trips for the students. It was open to any interested society member and to trained nurses accredited by an official organization. The tuition fee was \$25. A certificate of graduation was awarded to all members of the course attending 75 per cent of the sessions. I am proud to report that sixty physicians attained these certificates.

Simultaneously we asked the Bureau of Industrial Hygiene, Pennsylvania State Department of Health, to conduct an industrial survey of Philadelphia County. We already knew that there were about 4,000 industrial establishments in that area but we did not know much more than that. The survey has been only 25 per cent completed, owing to the war, but we know what we know about 1,000 plants. We know their size, their product, whether they have a full time, part time or on call physician or no physician. We know whether they are equipped with a full time, part time or visiting nurse or with no nurse. We were not surprised to find most of the larger plants already ade-

quately serviced or to see that plants of 500 or less employees were woefully ill equipped or completely lacked any medical service.

With our supply of physicians ready and our facts on the size of the need well in hand, we were ready to solicit the interest of labor and management. We found to our good fortune that the chamber of commerce and the board of trade of Philadelphia already had a health committee in existence. We were further fortunate in enlisting the active interest of this committee to such an extent that several of the members of the county medical society committee on industrial health were asked to become members of the chamber of commerce health committee. After several meetings of this "interlocking directorate" we began to see the path straight before us. Since 1,000 plants were already listed, it was obvious that only a portion of them could be successfully approached. Our first field then was limited to those plants in the list with 250 or more employees who were known to have inadequate or no medical service. These totaled 178 companies.

Two of the medical members of the chamber of commerce health committee were instructed to write a simple pamphlet in question and answer form, detailing the desirability of industrial health coverage in small plants, with its appeal directed to the management of those plants. This was reprinted in full in bulletin 18 from the Council on Industrial Health of the American Medical Association. It proved exceedingly useful as handout literature at our meetings with the individual plant managers.

While this work was in progress the chamber of commerce, through its executive committee, submitted our entire plan to the Central Labor Union Council in Philadelphia and succeeded in getting both A. F. of L. and C. I. O. endorsement to the project. Here was an asset of untold value. It at once allayed any possible suspicion on the part of a union local that their management was attempting something which might embarrass union members through fostering our plans in their work place.

As we progressed, we realized that one important detail had not yet been mapped out. No one had a clear conception of the exact procedure should the chamber of commerce health committee receive a request from a plant executive to help him establish an industrial health service. The routine of this procedure became the subject of several meetings of the committee on industrial health of the county medical society. The outline was then submitted to and thoroughly reviewed by the chamber of commerce health committee until finally a two page set of directions setting forth each consecutive step was adopted and since then has been followed successfully in our contacts with business men.

These directions are an attempt to bring uniformity into the actions of our various two man contact teams. They show the team how to approach the industrialist to win his interest in securing medical services in or out of a plant for the benefit of his employees. If satisfactory to the employer, they try to set up the medical service under the supervision of the physician who already is on call for accident work. If that physician has neither time nor inclination for assuming such responsibility, our representatives make it clear that he can take no umbrage if another physician is asked to do the work. A rough assay of the plant and its needs

Read before the Sixth Annual Congress on Industrial Health, Chicago, Feb. 15, 1944.

1. Long, C. F.: Program for Industrial Health in State and County Medical Societies, J. A. M. A. 115: 427 (Aug. 10) 1940.

is then drawn up and the manufacturer informed of the number of hours per week a physician should visit. Further recommendation is made that a nurse be engaged and that her hours be twice those of the physician. In the matter of fees, we have only authority to tell what has been the practice in other parts of the city and state, but the team insists that monetary arrangements be left to conference between the chosen physician and the industrialist.

At the moment our teams are all stressing the desirability of "inplant" medical service, because all our contacts are with employers of 250 or more individuals. As we progress to the medical servicing of smaller plants we shall have to turn to the several methods already outlined for us by the Commission on Industrial Health and Hygiene of our state society. Some of them will be applicable, some will not, but they are included here for the sake of completeness:

1. The general practitioner interested in industrial health is hired by management on an hourly basis. Our best example of this is the Lycoming County plan, where it has satisfied the needs of small industries in a number of instances.

2. A physician fills his time completely with hourly engagements in industrial health, thus becoming a full time industrial physician. To our knowledge there are only two physicians so occupied in Philadelphia.

3. A physician conducts a dispensary in a building housing several industries, supported on a subscription per capita basis. This type of service has been in effect for several years in one large industrial building in Philadelphia (the Fleisher Industrial Center).

4. The management of a factory building containing several industries contracts with a physician to supervise a dispensary in space set aside for the purpose by this management. This is a variation on the aforementioned plan.

5. A central dispensary is established in the neighborhood of a group of small industries and is run by a physician with the aid of a full time trained nurse. This idea is an amplification of an already existing technic. Many hospitals and a few insurance companies in Pennsylvania have already established industrial clinics, but so far they are all limited to the treatment of industrial accidents only. It will take a change in thinking and point of view to adapt these clinics to complete industrial health service, but at least the equipment and the personnel are already at hand!

Laying the foundations described so far consumed most of the spring and summer of 1943, but by early fall we felt ready to tackle the 178 industries selected from the list as our trial group. The president of the chamber of commerce sent out a series of three letters to each of the 178. The first two letters were attempts to arouse curiosity, then interest. The letters were spaced a week apart. The third letter was a definite invitation to meet with the members of the health committee at a stated time and date. Seventeen industries sent representatives. The meeting was held on an informal basis and took the form of a question and answer session. As a result of that meeting several industries asked for further attention, and each was visited by a team from the health committee consisting of a physician and a lay member. Since that time progress has been slow but steady. Requests for meetings with our two man teams have been received from

11 industries, and medical services have either been expanded or initiated in 7 of these industries.

We expect progress to continue at this slow pace for a time, but we think we see a factor that may give large impetus to an accelerated rate of demand for industrial physicians. That factor is the rehabilitation into industry of young men discharged from the Army for medical reasons or because of combat disabilities. All industrialists are sincerely anxious to place these men in their previous jobs or in suitable jobs rapidly. Some of them, inadequate for military duty, are still well able to perform the job they left in civilian industry. A large number must be remeasured for a job. This cannot be effectively done without the examination and advice of a physician who not only knows the man but knows the various job categories. We can proclaim this evident truth to industry, but from past experience we know that until they are really put into the middle of the rehabilitation problem the average group of industrialists will do nothing about it. The time is not far distant when rehabilitation of veterans will be the major concern of most industries, and we in Philadelphia feel that we have established in our chamber of commerce health committee a source of help to which our industries may turn to get their medical services properly set up.

When one considers that there were 178 prospects, the number of medical establishments successfully installed through our efforts looks pitifully small. We are in no way discouraged. We feel that our important accomplishment has been the development of a technic whereby medical industrial services can be installed in small plants whenever they are desired. We take real pride in the fact that this technic involves the active cooperation of management, labor and the medical profession. One member of the committee, following our first meeting with manufacturers, was depressed that only 17 responded and only 7 seemed interested. He disgustedly remarked "At this rate, getting adequate health service into Philadelphia's industry will take a lifetime." Our reaction is that by dint of hard work we hope the required time will be only that short. If, through our voluntary efforts, coupled with those of organized labor and industrial management, we can live to see health services established in Philadelphia's industries, our committee members can leave Sir Christopher Wren's epitaph to succeeding Philadelphia medical generations: "Si monumentum requiris, circumspice!" "If you are looking for our monument, look around you!"

1836 Delancey Street.

Occupational Diseases of Miners During the Middle Ages.—Throughout the entire medieval period there are no contributions to the subject of miners' diseases, and it is not until the 16th century that we find definite information relating to the occupational diseases of mine workers. Our knowledge of these diseases is based on the accounts of Paracelsus and Agricola. The former composed his monograph *Von der Bergsucht und anderen Bergkrankheiten* in 1533-34, while the latter's work, *De re metallica*, which contains the section on "the ailments and accidents of miners," was published in 1556. Although these descriptions refer only to the conditions present during the 16th century, it is more than likely that, to a greater or lesser extent, similar conditions prevailed during earlier centuries.—Rosen, George: *The History of Miners' Diseases*, New York, Schuman's, 1943.

PRESENT STATUS OF REHABILITATION
IN THE UNITED STATES ARMY

BRIGADIER GENERAL FRED W. RANKIN

Chief Consultant in Surgery, U. S. Army
AND

MAJOR WALTER E. BARTON, M. C., A. U. S.

Director, Reconditioning Division

WASHINGTON, D. C.

The preservation of the health of the soldier is the responsibility of the Medical Department of the Army. This role is vital to the efficient operation of a military machine, for a weak soldier cannot fight and an unhealthy army cannot do strong battle. Not only are we charged with the conservation and maintenance of health which will preserve the physical endurance and mental powers of our fighting men at a peak level required to assure combat superiority, but we are intimately concerned with all the factors that affect the soldier's well-being from the time he enters the Army until the day he leaves.

The importance and magnitude of these responsibilities are borne in on one when it is realized that the enormous expansion of our medical officer personnel has withdrawn about 40 per cent of the usable physicians of this country from civilian practice. It is a well known fact that we provide our soldiers with a chain of medical care from the forward echelons in the theaters of operation to the general hospitals here at home unsurpassed in any other military establishment in the world.

When a soldier is sick or wounded he must begin, soon as his physical condition permits, a program which is directed toward returning him to a definite status, provided he is to be retained in the armed forces. This highly important mission of rehabilitation is concerned with both reconstructive surgery and physiologic reconditioning. It is instituted to effect the salvage of the maximum number of casualties and allow them to return to active duty, or at least to assume a happier and more useful place in society.

Rehabilitation in the Army falls into two major categories:

(a) The reconditioning of the soldier, convalescent from disease or injury, who is to return to duty, and

(b) Rehabilitation, medical, social and vocational, of the soldier who is unfit for further service because of disability.

Early in the war the Royal Air Forces in Britain found they were losing battle-seasoned men of proved courage by reason of lingering disabilities. Manpower shortages compelled interest in the convalescent patient in the hope of salvaging men for further service. Planned training of convalescents was highly successful. The U. S. Army in the European theater has established similar convalescent centers. The Army Air Forces have elaborated a Convalescent Training Program in all air station hospitals. Army service force station and general hospitals have also been instructed to organize convalescent training programs. All general hospitals in the United States and many station hospitals now have functioning reconditioning units.

There is nothing startlingly new or different in the concept of reconditioning. The medical profession has been aware of the importance of care during convalescence since antiquity, and the word convalescence is used by us today exactly as it was by the Romans two thousand years ago. Hippocrates, Galen and Celsus

made reference to the regulation of diet and exercise for the patient recuperating from acute disease or injury, and in the 1860's Florence Nightingale in her "Notes on Hospitals" said "The first necessity of a convalescent hospital is that it shall not be like a hospital at all." This is the keynote of a reconditioning program.

Every war has intensified interest in convalescent reconditioning because of the need for getting soldiers back to duty as quickly as possible and also for the purpose of releasing hospital beds for newly wounded and sick. During the first world war the importance of physical and occupational therapy, work shops and educational and recreational programs for convalescents was high lighted. In England, through the labor unions, this definitely organized beginning was expanded. In the United States this was not the case. Nevertheless, in the special fields, as in orthopedics and neuropsychiatry, and in the treatment of tuberculous patients, the development of convalescent reconditioning has gone ahead.

It may be expected that the world conflict we are now in will intensify interest in all phases of treatment of convalescents. It can be assumed that the lessons learned in this treatment may open up medical interests of sufficient importance to make convalescent reconditioning and care an important part of the training of every physician. The program of this conditioning developed out of experience in Army hospitals may be expected also to leave its mark on civilian hospital practice after the war. Industrial accidents and disease affect the civilian patient in quite the same way as war injuries and sickness affect the soldier. Physical fitness and mental alertness will speed the return of the convalescent employee to his work and save many days of time lost from production.

In the Army the reconditioning program, which is the name given to the integrated activities of convalescent care, has as its primary objectives:

1. The return of more men to duty.
2. The return of soldiers in full physical and mental vigor in order that they may withstand the rigors of full duty.
3. The use of time spent in hospitals profitably to produce a physically fit and better informed and better oriented soldier. The constructive use of enforced leisure on a planned program of physical training and educational and recreational activities combats the flabbiness of body and of spirit that idleness and boredom of monotonous empty days spent in hospitals tend to engender.

Getting a man out of bed and back to active duty is not simply the task of treating him physically. His will also is involved. He must want to get well, and the desire to be active again must be nurtured, especially when such activity may be distasteful and unpleasant, as in the case of the soldier returning to battle.

The appeal to interests which awaken and promote mental activity works positively on the body also and tends to arouse the desire for physical activity necessary for recovery. Education, involving information and orientation which leads to reaffirmation of the purposes for which we fight, can and should be an important part of any program for reconditioning soldiers.

It is important to start the program of retraining at the earliest moment convalescence begins. The expectancy of restoration of health and further service is thereby fostered, guarding against oversolicitous sympathy and concern with disability by both patient and staff. For administrative convenience patients are classified into groups: class 4, the bed patient; class 3, the ambulant hospital patient; class 2, the patient no

longer requiring active medical treatment, and class 1, those requiring final hardening for duty.

The convalescent patient, still in bed in class 4, in addition to physical therapy and other treatment procedures may begin bed exercises designed to prevent physical deterioration and promote gain in physical strength. Physical fitness preserved shortens the time required to regain full vigor. Occupational therapy projects may be brought to the bedside and interesting art and hobby work utilized to prevent morbid introspection. The portable movie projector, ward class and discussion groups have been employed to bring educational opportunity to the ward patients. Those who wish may enroll in the U. S. Armed Forces Institute and continue academic training. Movies, music and entertainment also are brought to the ward.

The ambulant hospital patient in class 3 will continue his special treatment and may attend the physical therapy department and its remedial exercise gymnasium. Function of damaged limbs may be improved by attendance at the occupational therapy shop. In addition, assigned work activities and physical training may strengthen muscles weakened by stay in bed, injury or inactivity. These patients can be assembled in groups for educational activities. Discussions of current events, battle strategy and general information about the war keep alive interest and desire to do their part. Military classes in first aid, camouflage, radio and communication and the like add to the knowledge of the soldier and restore combat skills. Recreation under the auspices of the American Red Cross and the Special Service Division provide current movies, music and entertainment as well as opportunity for active participation in games.

At the earliest possible moment, when the soldier is no longer in need of active medical treatment, he is ready to leave the hospital environment. He discards the maroon Army hospital suit and dons his military uniform. He leaves behind the name "patient" and becomes a "trainee" in the Reconditioning Section. In barracks, on the grounds of the hospital or in a detached camp nearby, class 2 patients undergo a planned course of physical fitness training by means of calisthenics, games and sports, work activities of a useful industrial nature, and the obstacle course designed to restore full strength. Activities are planned with a progression in keeping with returning strength. As the soldier becomes a class 1 trainee, military hikes, marches and drills are added and his fitness to return to duty is checked on scores made on physical fitness tests.

The educational program in the Reconditioning Section takes up fewer hours, for the time spent in physical training is increased. The subjects presented are of a military nature necessary in training. Recreation consists in a free choice of the many leisure time activities available and the greater freedom which passes off the post bring. Only those patients are sent to the Reconditioning Section who may be expected to return to duty. Patients awaiting discharge from the service because of incapacitating illness or disease must not be sent to this group. Similarly, nervous and mental patients are not sent because of the problems introduced by the man who is looking forward to discharge and home. The problem of morale involved is important. A special program of reconditioning of these two groups is carried out, but in wards of the hospital instead of in the reconditioning section.

No accurate figures of the results in saving of manpower are as yet available. One convalescent center

overseas reports 89 per cent of its trainees returned to duty. General hospitals in this country dealing with evacuated patients with more serious disabilities are returning an estimated 50 per cent of their trainees to duty.

The chief concern of the Army in rehabilitation is with the period of convalescence and with the reconditioning of the soldier for further military duty. When a man is found to be unfit for further service and has reached the period of maximum hospital benefit, he must be discharged from the Army.

Contrary to some expressed popular opinion, the Army Medical Department is not a welfare organization. It cannot afford to turn its energies from the preservation of the fighting efficiency of the troops and the healing of the sick. There is much talk these days about the introduction of vocational training into hospitals. The complexities of the problem of restoring the soldier with or without a handicap to his job are such that other governmental agencies are properly charged with that responsibility. There is, however, a moral and social obligation to undertake the beginnings of retraining for social living in those individuals, unsuited for further military duty by reason of the handicap of disease or injury, who are still confined in an Army hospital. This responsibility for retraining terminates when the individual has received the maximum hospital benefit obtainable from medical and surgical procedures and when he may be safely discharged to his own care or to the Veterans Administration.

The blind servicemen represent a group requiring special rehabilitative measures. They are retained in two hospitals designated as rehabilitation centers for that purpose until the soldier has adjusted himself sufficiently well to the handicap of blindness to be able to care for himself and to get about easily, and until he has learned certain basic substitute skills designed to minimize his handicap. He is retained in the military service until he is capable of undertaking vocational training provided under the Veterans Administration's plan or until he is able to care for himself adequately at home, should he not desire or need additional job training.

The deaf are retained in three designated hospital rehabilitation services for those with impaired hearing until tests are made and hearing aids fitted to those who will secure benefit from them. Teachers instruct the men in the art of lip reading, and in six to eight weeks almost all become adequate lip readers. Speech correction teachers are on hand to prevent deterioration of speech.

The soldier who suffers an amputation goes to one of five designated hospitals. Amputees are retained in service until they have been fitted with a temporary artificial limb, if this is possible, and have learned how to use it properly. Six months after discharge a permanent artificial limb of the latest design may be secured from the Veterans Administration.

The Medical Department of the Army intends to supply the best medical and surgical care to all service personnel from the earliest possible time after injury until maximum hospital benefit has been obtained. The period of convalescence will be employed for mental and physical reconditioning in order that many may return to duty, some to combat overseas and others to service elsewhere in less vigorous duty where skills and abilities acquired during the long and arduous training and in combat may be used to advantage.

It is our hope and aim that those unfit for further military service will receive the attention required by their psychologic and emotional needs as well as by their physical needs in order that the wounds of spirit may also be healed. During hospitalization, efforts will be directed toward the development of self reliance and self sufficiency. Through the assistance of the American Red Cross, the United States Employment Service representatives and Veterans Administration workers, who are available for interviews at hospitals, servicemen will have an opportunity to discuss job placement or job training needs before they leave the service, and they will be discharged with information as to their rights, aware of veterans' benefits, and with knowledge as to where they may turn for assistance. Through operation of these services we hope that many may be enabled to continue to serve their country in industry at home.

VOCATIONAL TRAINING AND PLACEMENT OF THE VETERAN

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In considering the possible educational program of returning veterans there are certain facts concerning these veterans in general of which one should be cognizant. The men in our armed forces are among the healthiest and most normal of our American manhood. Their educational level is high. Fourteen per cent of the Army of World War II are college men; 53 per cent have some high school education, and of these almost half are graduates. Only a third of the group are on the grade school level—as compared with 80 per cent in the last war.

Not only are the service men of today initially better educated than those of any previous war, but liberal provision has been made for their continued education while in the service. In all previous wars the time of service was a period of mental stagnation. It represented a block taken out of life. This is not true of World War II. Education in the form of camp libraries, group study courses and Armed Forces Institute correspondence courses in which every major collegiate institution is participating is making learning continuous with the soldier's life interests. Educational planning and opportunity follow the men everywhere, into the heat of Africa and into the arctic nights of Iceland.

The men in the armed forces are young men. In 1943, 50 per cent of the men in the Army were under 25 years of age; 80 per cent were under 30. Consequently the great majority of veterans will still be in their twenties. At least a third will have had no vocational experience except that acquired in the armed forces, for they entered the Army directly from school. Only about 20 per cent were out of school more than three years before they were inducted. A majority, therefore, will have had, at the most, one or two short work experiences. However, this lack of civilian vocational training is counterbalanced by the vast amount of technical training these men have received while in service.

The armed services, like all society, have gone through an industrial revolution and, as a consequence, the technical jobs that must be learned as a part of the trade

of war run into the hundreds. In the last war the technicians were in the minority; in this war, according to a statement of General Somervelle, the technically trained amount to about 63 per cent of the armed forces. "Without them," he says, "our army would be an incongruous mass incapable of effective action." The branches of the armed services—the Signal Corps, the Air Forces, the Army Supply Forces and the branches of the Navy—all have vast training enterprises, entering and graduating thousands of men a day. Two million men technically trained in navigation, mechanics, radio and a score of flight instruments carried as equipment in each plane have been required for the hundred thousand planes made last year. When it is considered that 60,000 trained specialists are required to launch a thousand plane raid and keep 10,000 men in the air, the number of technically trained men required for our mechanized forces can be readily imagined. The armed forces of World War II are adjusted to the understanding of highly complicated mechanical instruments and processes—antiaircraft gunnery under remote electronic control; navigation in the air and on the sea by the electron beam; radio communication—things which were entirely unknown at the time of World War I. It is true that much of this training has been narrowly technical and otherwise limited in scope, as is that of the average war worker, but the amount of it is unprecedented.

From such men as these will come the veterans who will be seeking our aid.

These men will fall in four general categories: (a) The veterans who will return home and will want a job. If they want their old jobs back, the facilities of the employment service of the Selective Service are at their disposal. If they want new jobs, the facilities of the U. S. Employment Service are available to them along with counseling and guidance work. (b) The veteran who will want to renew his educational program interrupted when he entered the armed services. At the present time there is no federal legislative provision to aid these veterans, but a number of bills have been introduced in Congress proposing such aid. Hearings are now being held on this subject. Just what final provisions will be made is not certain at the moment, but it has been proposed that provision be made for all veterans whose education was interrupted, that they receive a maintenance allowance while in training, plus the cost of tuition, books and supplies. One year of education is assured with certain provisions for additional training where it is merited. I have the feeling that some provision of this kind will be made, but until such law has been enacted there is nothing we can do with respect to the veteran falling in this group.¹ (c) Veterans who have disabilities which are not service connected—in other words, disabilities which existed prior to their induction into the service, or disabilities which are not pensionable under the federal act. The State Vocational Rehabilitation Board offers aid to many of these veterans. Mr. Shortley will discuss this program. (d) Veterans who come out of this war with disabilities incurred or aggravated in service and who have a vocational handicap. My subject implies that my discussion be restricted to this group.

On March 24, 1943 the President of the United States signed Public Law No. 16, 78th Congress. This act provides for a rehabilitation program of disabled handicapped veterans of the present war.

1. At time of publication Senate bill 1767 had been passed by the Senate and a similar bill, with amendments, by the House. Apparently the two bills are now being considered by a conference committee.

The Veterans Administration therefore has been charged with the responsibility of carrying out the provisions of this act. A Vocational Rehabilitation Service has been established to administer the provisions of this law through its fifty-three field stations situated throughout the United States. We are now accepting disabled handicapped veterans for vocational training. The demand for vocational rehabilitation will be relatively light at first, but within a short time hundreds of veterans will be embarking on vocational training programs, and as this war continues the number will increase appreciably.

Much time could be consumed to discuss so-called contemporary thinking and practices of specialists and alleged specialists in the field of rehabilitation. To me the term rehabilitation has a rather broad and comprehensive meaning. In its broadest sense it should include all forms of physical, social, psychologic, recreational and occupational therapy as well as reeducation in vocational fields. There are those who have a very restricted conception of the meaning of the term, so much so that their vision often fails to encompass many vital factors in a vocational rehabilitation program.

As the act under which we are operating at the present time is restrictive, I shall, through necessity, confine my remarks to the subject of vocational rehabilitation and placement of the handicapped veteran. The other phases of rehabilitation shall have to be passed up at this time. I shall do my utmost to discuss the subject of vocational rehabilitation from the practical point of view.

Who Is Eligible for Vocational Training.—Every citizen should understand the basic requirements for entitlement to vocational rehabilitation benefits under this act. These requirements are that (1) the veteran must have served in the armed forces subsequent to Dec. 6, 1941 and prior to the termination of the present war, (2) he must have an honorable discharge, (3) he must have a disability incurred in service or aggravated by service for which pension is payable under the law (10 per cent or more), (4) he must have a declaration of vocational handicap and (5) he must be in need of vocational rehabilitation to overcome his handicap.

Training Pay.—While the veteran is pursuing a prescribed training program, and for two months after his employability is determined, the veteran is entitled to training pension pay as prescribed under the regulations. If he is a single man, his training maintenance is \$80 a month; \$10 additional pay is allowed for wife or husband, and \$5 for each additional child. If the veteran's pension is normally below \$80, a sufficient amount is added to the pension pay to equal \$80. To illustrate: A veteran receives \$30 pension; \$50 more will be added to that amount to equal \$80 per month payment. However, in the event that his pension for disability exceeds \$80, pension is not reduced to this figure—it is continued at the awarded pension rate. Also the cost of tuition, use of books, supplies and equipment are paid by the government.

Accident While in Training.—If a veteran in the pursuit of vocational rehabilitation, and not the result of his own misconduct, suffers an injury or aggravation resulting in additional disability or death, the benefits under laws applicable to veterans of the present war shall be awarded in the same manner and extent as if such disability, aggravation or death were service connected within the meaning of such laws. Benefits under this provision shall be awarded on application therefor within two years after such injury, aggravation or death.

Revolving Loan Fund.—The law established a loan fund of \$500,000, to be utilized as directed by the administrator. This is in the nature of a revolving fund for the purpose of making advancements not exceeding \$100 in any case to persons commencing or undertaking courses of vocational rehabilitation. The money advanced bears no interest and is to be reimbursed in such instalments as may be determined by the administrator by proper deductions from any future payments of pension or retirement pay.

Vocational Handicap and Need for Rehabilitation Training.—The purpose of vocational rehabilitation is to restore employability lost by virtue of a handicap. Therefore it is important that we have available as full and complete information regarding the veteran's occupation as is possible, because a vocational declaration must be based on the inability or undesirability of the veteran's pursuing his prewar or army occupation. A vocational handicap will be determined to exist when, on the basis of the evidence of record as to the disabled person's education, occupational training and experience, it is found that the disability will materially interfere with securing and pursuing employment comparable with that for which the person is qualified by education, training and experience.

When the veteran is notified that he is eligible for vocational rehabilitation he is requested to come to the office for an interview.

One of the purposes of requesting the veteran to report to the Veterans Administration for an interview is to determine whether the handicap is of such a nature and degree that vocational rehabilitation is necessary. A number of factors must be considered in determining this need. Among these may be his ability to pursue his previous employment, experience and training as providing possible adjustment in occupation to overcome handicap, and the long time effects of the disability on ability to compete in employment.

Vocational Advisement.—After the need for vocational rehabilitation has been determined, we institute a program of vocational advisement. We are insisting on a thorough job of advisement, believing that the more thorough job we do in advisement the less will be our subsequent problems in training.

Vocational advisement must be individual in its practice and requires sound, practical judgment. Advisers must maintain an attitude of sincerity and sympathetic interest. Confidence of the veteran in the wisdom of the adviser is essential. This confidence is the very foundation of the common understanding that is so essential to good advisement. The veteran expects only a normal degree of friendliness and such natural dignity and common sense as to make him feel that the adviser is open minded and is willing to consider his interests in fairness. The interview must be natural in every respect and free from stiff formality. This is very essential if we are to get a free discussion of the veteran's problems.

Why is advisement so necessary? One would think that previous to enlistment these veterans had been employed in occupations for which they had been trained, but this is not true. It is appalling to learn of the large number of veterans, and this holds equally true of nonveterans, who merely drifted into a job, either through necessity or without knowledge of the broader field of opportunities in other lines of activity.

With us vocational advisement and guidance is more than giving information about vocations. Our program

must be more comprehensive than this. Complete advisement should acquaint the veteran with full possibilities in various occupations—a comprehensive picture of the specific field of his selection. In many instances advisement must be exploratory. In the case of the normal worker, advisement may be rather simple; but with us we must keep in mind constantly the physical impairments of the individual and direct our guidance in the specific field in which the individual can carry on successfully despite his disability.

We must make an exhaustive inquiry into the veteran's previous scholastic training, his occupational experience, interests, hobbies, intelligence level and aptitudes.

It has been said that aptitudes are inherent. So we may utilize tests in an effort to discover the veteran's aptitudes. These tests help us to discover special aptitudes—accounting, creative ability, mechanical dexterity and so on. In many instances these special aptitudes are hidden or have remained dormant. As the veteran may have lost a number of his abilities, it is important that we discover if possible any hidden or dormant abilities remaining.

If we do a satisfactory job of testing and determining results there will be less need to "expose" veterans to shop or job requirements to see if they "fit." Exposure to numerous shop or job experiences is all right with younger immature persons where time is not such a vital factor, but we are dealing with adults, and time is the essence of everything. We must cut short the period of time normally consumed to discover likes, dislikes, aptitudes and abilities. As a general rule these veterans want quick results. In some instances a veteran needs further development of a partial skill he has already acquired to make him employable, while another will be obliged to train for an occupation entirely new to him.

Selecting an Employment Objective.—After full consideration of the veteran's scholastic training, occupational experience, interests, hobbies, intelligence and aptitudes we undertake to select an employment objective.

In simple terms, the employment objective is the thing for which we propose to train the veteran. As the law requires training for specific employment, it becomes imperative that a definite job objective be selected. All training must be in the direction of the accomplishment of this objective. General and academic education as such is "out the window," but any academic training required to reach an objective is permissible.

We strive to make the veteran feel that he is a party to this whole program and that a decision in an appropriate employment objective is most vital to him. His interests and desires are fully considered, and we must be convinced that these interests and desires are real and lasting. We must explore fully the entire field of employment. Also in selecting an objective we give consideration to the possibility of providing training that will be applicable to the requirements for employment in other positions closely related to it, utilizing the job family technic.

In selecting an employment objective we must keep in mind the veteran's intelligence level and the level of the occupation in which the veteran was previously employed. This shall in no case constitute a criterion by which to limit the level of the employment objective selected. The normal progress in employment is from occupations of lower level to those of high level, and therefore the occupational level should never be applied

in such a way as to preclude the selection of an employment objective requiring such a rise in level as seems necessary under the circumstances in the individual case to provide an objective suitable to restoring the employability which was lost by reason of the disability. Extreme differences, however, between the level of the chosen objective and that of the veteran's previous employment are not warranted.

The employment objective in each case must be considered in relation to the training required. The course of training must be completed within the minimum time essential to restoring employability. However, the maximum training period allowable under the law is four calendar years. We must complete the job within this period—training and determining employability.

Physical Disabilities Contrasted with Vocational Handicaps.—We need to distinguish between a mere physical disability and a vocational handicap. This is vital. A physical disability does not necessarily mean a vocational handicap. Many veterans may possess physical characteristics that have a tendency to limit their accomplishments in certain fields but may not be considered handicaps. However, when these limitations become so great as to prevent them from doing specific performances on an equal basis with normal workers in that field, the disability of course becomes a handicap. Our primary consideration here is the veteran whose disability limits his normal performances to the extent that these limitations constitute a handicap.

In considering a program of rehabilitation for a handicapped veteran we must consider (1) the abilities he has lost, (2) the remaining physical abilities he possesses, (3) the requirements of the job for which he is to be trained, (4) the type of facility to be used and last, but not least in importance, (5) the attitude of the man who will employ the veteran after he has been trained.

Extent of Physical Limitations.—It is important that we know in what way and to what extent the disability of the veteran limits his ability to work. It is not sufficient to know that a person has a heart disability, diabetes or a permanent injury to his legs or hands. We may know in a general way how these disabilities impair one's capacity for work, but to do our job satisfactorily we need to know in detail the extent of the physical impairment caused by these and other disabilities.

We cannot always rely on the veteran himself as a source of information about his physical limitations. He does not always know the extent to which his disability may interfere with employment.

The medical records and the skill of the advisement officer are most important in this connection. Full and complete knowledge of the limiting phases of the disability is a paramount factor that must be fully explored in our advisement program.

Physical Abilities Remaining.—With us it is important to know what a veteran can do with the abilities he has remaining. We must be in a position to utilize and develop fully these remaining abilities. If the abilities he has lost create a vocational handicap, we are confronted with the problem of developing skills with the remaining abilities in such a way as will enable him to pursue an occupation comparable with that of the normal worker.

What we are in a position to do with the veteran will depend on his intelligence, occupational experiences, interests, aptitudes, developed skills, additional knowledge that can be acquired and his disabilities. With a

knowledge of these factors we may be able to redirect and adjust his occupational activities. In many instances we can capitalize on his past training and experience. For example, a person may have been a millwright worker prior to his service and have had considerable training in mechanical drawing and blue print reading but, owing to physical disability, be prevented from pursuing his prewar occupation. We can capitalize on his previous training in drawing and train him to become a draftsman. In other instances we may be obliged to train the veteran for an entirely new field.

In connection with this problem we find many instances in which a veteran develops an emotional disturbance which must be taken into consideration. This emotional disturbance frequently results from his constant worry over his disability, and it may reach the point where the veteran's confidence in himself becomes impaired. It is not uncommon to have this factor appear in the picture. This emotional upset may reach the point where it becomes the dominating factor in the vocational rehabilitation program.

I have in mind one veteran who had a disability of manic depressive psychosis which had been aggravated considerably by his conviction that every employment manager knew of his disability. I spent considerable time proving to him that this was a false notion on his part and finally succeeded in convincing him that there were only two persons who knew of his disability, and if he did not disclose it I was positive that I would not do so. He felt relieved over this. He has been in training now for several months; his attendance, attention in class and progress in his work are considerably above the average. He is gradually overcoming this phase of his handicap. He is beginning to feel that the "breaks" are coming his way.

Requirements of the Job.—After a thorough analysis of the veteran's physical impairments and what abilities he has remaining, we must know the physical as well as the scholastic requirements of the job for which the veteran is to be trained. Much research has been carried on in recent years by the Research Division of the Department of Labor and by private industry. We have available today job definitions and job requirements of more than twenty-seven thousand different jobs, but this information does not always disclose the physical requirements of the job. Some of the things we need to know about the job in addition to job definitions are strength requirements, physical energy requirements, nerve requirements, eye strain, body dangers and presence of dirt, dust, fumes, moisture and noise. Other factors in this connection must be known to the adviser. Some of them are general educational requirements, accuracy, ability to assume responsibility, judgment, ability to analyze, foresight, management ability, alertness, application required, initiative requirements, originality, adaptability and memory ability.

Another factor in connection with the requirements of the job is the training itself—we call this the training program. A complete training program is prepared for each veteran. In this program are listed in proper sequence the major kinds of work tasks, job operations, processes, skills and occupational information required to qualify the veteran to become employable in the chosen objective.

Type of Facility to Be Used.—As we expect to train these veterans for permanent employment, we anticipate that a period of training will be required to qualify them for new jobs or jobs closely related to previous occupations.

The training facilities of educational institutions of recognized standing, industrial establishments, farms and governmental agencies will be utilized to train these disabled veterans for employment. The law provides that "the purpose of rehabilitation is to restore employability lost by virtue of a handicap due to service incurred disability." Therefore, "training into employability" shall be our chief aim. This employability may be attained by institutional training, training on the job or both institutional and job training.

Employer's Attitude.—One of the difficult problems in connection with securing employment for the physically disabled veterans arises from the attitude of employers toward employing persons with disabilities. For centuries the person with a physical handicap or disability was considered a social liability. In recent years, however, this picture has changed perceptibly. We have demonstrated that physically handicapped persons can be employed in jobs where they can produce on a comparable basis with the person considered normal physically if they have been adequately trained and properly placed. Here is ample proof of this statement:

Some years ago the proprietor of a large industrial enterprise established a definite policy of employing disabled workers. He organized an adequate staff of medical men and personnel specialists to put the plan into operation. In brief, the plan works something like this: When a disabled person applies for a position, he is turned over to the medical department for study. His disabilities are analyzed from the standpoint of occupational pursuits which will utilize to the maximum his remaining physical abilities without aggravating his disability. After this analysis has been made, the personnel specialist is consulted to determine the kind of job the man can do in the light of medical findings. A shop foreman is brought into the picture to assist in directing and supervising the actual employment of the man. This policy has been proved so sound that the management proposes to expand the present program of employing handicapped persons.

As of Dec. 14, 1942 there were employed in one plant 11,163 disabled persons. Of course many of the disabilities listed are minor, while others are quite serious.

For example: They had employed 91 persons with one arm amputated and 3 persons with both arms amputated. These men act as watchmen, attend doors, operate elevators, pick up papers and work on salvage. Some of the one-armed workers are aided by the use of an artificial arm.

One hundred and eleven deaf mutes were employed; these men are allowed to do almost any type of employment that a normal person can do. They are, however, kept in buildings where there are no overhead cranes; this is to protect them from falling stock.

One hundred and thirty-five epileptic persons were employed; these men are placed on sweeping, light bench work, inspection and the like.

Thirty-five totally blind persons were employed in such work as packing small stock for shipping, assembly work and inspection.

Three hundred and eighty-two persons blind in one eye were employed on bench work, sweeping and similar jobs but are not permitted to work on machines where there is a possibility of eye injury or to pursue any other occupation barred by the Safety Department.

Three hundred and ninety-seven persons with finger amputations were employed in varying occupations depending on the extent of the disability. Many of

these workers are on regular production work on benches or machines; others work on salvage, cleaning departments and so on.

Two men with both legs amputated are working at such jobs as will permit sitting; they pack stock, repair electrical equipment and do inspection and clerical work. There were 157 persons with one leg amputation. With the aid of an artificial limb some of these men do full time standing work at machines and production benches; others work at jobs similar to those pursued by workers with both leg amputations.

I am not going to attempt to cite workers falling in all of the seventy-one categories, but I have attempted to give a few to show what a carefully organized program based on such a policy can accomplish.

Now what is the proof of soundness of such a policy? There is considerable feeling that insurance rates under workmen's compensation will be increased if disabled persons are employed. As a consequence of this feeling, many persons with disabilities are rejected for employment. There is little evidence in fact that such a feeling is justified, because it has been learned through experience at this plant that the accidents among disabled workers are less than the accidents among normal workers doing similar work. The answer here of course is quite obvious—disabled workers are more cautious. A man blinded in one eye is going to be very careful to protect the other eye.

This experience has brought out several other interesting facts. A greater degree of loyalty among disabled workers is observed. In many instances production has increased. This policy has proved so successful that this organization has announced that it can employ 30,000 disabled persons in its plants throughout the United States.

During years of economic recession, when there is an abundance of available labor, the physically handicapped find it difficult to secure employment. Many employers have not yet become "handicapped worker" conscious, so they have preferred to employ able bodied workers, but when the pendulum swings in the direction of improved economic conditions and labor becomes scarce, many employers turn to those with physical disability as a matter of survival.

The labor supply during the current emergency has become so acute that about all the employer requires now is that the applicant possess a pulse and a warm body. But what will the employer's attitude be when the emergency has ended and labor supply becomes more abundant? Will he return to his prewar policy of strict observance of the old employment requirements?

It is my conviction that the question of employing disabled persons is pretty much a matter of individual employer policy, and because of this there is a great need for education among employers in this direction. The approach to employers in connection with adoption of such a policy is not made on the basis of sympathy. It is approached on a practical basis, the basis that every disabled person, if adequately trained and properly placed, can be made an economic producer comparable to any normal worker. The disabled person does not want to be employed on the basis of sympathy—he wants to prove that he can carry on successfully despite his disability. It is the responsibility of industry to assist in the development, organization and adoption of a sound policy of employing disabled persons.

Attitudes and fixations are not changed quickly. A tremendous amount of missionary work needs to be done among the employment managers and industrial physicians in order to bring about a more general adoption of a policy to employ persons with disabilities. The medical staff of industrial enterprises needs to be informed of possibilities in this field. Legislation providing for workmen's compensation insurance must be on a more liberal basis. This will be done as experience disproves the old traditional idea of increased insurance rates when employing disabled workers.

It seems to me to be reasonable to assume that such a policy is truly a part of a broad interpretation of a rehabilitation program. In fact, if this war continues and the number of disabled men increases, this may become a major aspect of rehabilitation and employment.

I do not believe that it is anything new for me to say that industry owes more to society than simply the payment of "so many dollars for so many hours' labor." Society makes the existence of industry possible, and its responsibility does not end with the pay envelop. Industry obligates itself for more than the wages paid to employees and taxes to governmental bodies.

Some years ago I heard the operator of a large chain of hotels say "You can't buy loyalty. You pay so many dollars for so many hours of work." At that time he was little concerned about the loyalty of his workers, but he lived to witness the day when he found that the rendering of ideal service to the public required loyalty of his workers. In his later years of management experience he became a confirmed exponent of the importance of employee loyalty.

Asset Value of Rehabilitated Persons.—Let us look at the record to see what this problem really is. The losses through injuries in industry, for example, stagger the imagination. Statistics show that the compensation for injuries in industry in Illinois was 7 per cent greater in 1942 than in 1941. In Illinois alone during 1942 we had a total of 43,107 injury cases with an aggregate compensation of \$9,065,357, compared with 41,454 cases shown in 1941 involving \$8,502,930 compensation. These figures, of course, do not include many injury cases in and out of industry. For example, injuries in which disability terminates within a seven days waiting period are not compensable in Illinois and are not recorded. If all these disabling injuries were recorded, we could add to the 43,000 another 116,000, and if we were to add to this figure those injuries sustained in the home, the figure of course would be much larger. Now these figures are for Illinois alone. If we had available the figures for the entire United States, we would have a fuller realization of the tremendous economic losses caused by accidents and subsequent physical disabilities.

Let us see what the record is with respect to the known number of disabled persons throughout the United States. In a recent survey made by the United States Public Health Service it was estimated that there was a total of approximately 2,500,000 people in the United States with orthopedic handicaps, 3,700,000 with heart disease, 680,000 with tuberculosis, 114,000 totally blind and 65,000 totally deaf. These are more or less major disabilities.

It has been estimated that 10 per cent of all men in the armed forces are going to be discharged with some form of disability. If one and a quarter million veterans

coming out of this war with disabilities are added to the civilian disabilities, it will be possible to get some notion of the magnitude of this problem—a total of 8,309,000 disabled persons. This is a problem industry cannot close its eyes to and refuse to assume its share of the responsibility of doing something about. The loss of man power labor hours to industry if these veterans go untrained staggers the imagination. If we do our duty and train these veterans adequately so that they can carry on successfully in new occupations on a comparable basis with the normal worker, the asset value to industry and society is incalculable.

After all, if we look at this problem from a materialistic standpoint alone we can see a definite asset value to society and industry in a rehabilitated veteran—a proud and self-reliant citizen and a valuable economic producer instead of a depressed victim of charity.

Cooperation.—The Veterans Administration is charged with the responsibility of preparing the handicapped veteran to carry on successfully in our industrial society. All of this requires advisement, training and employment. This is going to be our objective. We must not fail and we will not fail if each of us will do his part in this gigantic undertaking.

The Veterans Administration obviously cannot do this job alone. We need the friendly understanding and cooperation of everybody controlling the operation of business concerns, labor organizations, educational institutions, governmental agencies and any other facility we may be called on to utilize in order to accomplish the training and employment provisions of the Vocational Rehabilitation Act and their assistance will be welcomed.

These veterans have come from all walks of life—professional fields, offices, factories, mines, farms, transportation system. They will return to positions in these various fields. Their scholastic level ranges from illiteracy to university graduates, from unskilled laborers to most highly specialized technologists. Our problem is just that broad in scope and interest.

These veterans must be trained and returned to satisfactory employment. Physical disabilities will not be employment handicaps when these veterans are adequately trained and properly placed in occupations in which they can carry on successfully without aggravating their disabilities.

Many veterans are now being returned to their home communities by Army, Navy and Veterans Administration hospitals. Our responsibility is to train them for successful and satisfactory employment.

These veterans left the work bench, the office desk, the sales counter, industrial shops and entered the armed service not with any desire to lose a leg, an arm or an eye, suffer a gunshot wound or acquire an organic disease but to fight for a cause which was just as much a concern of those who remained at home as it was of the veterans who engaged in battle; and in some measure it was a much greater concern of many of us, because of the position of our enterprises in the world of affairs. Now these men are coming back and asking for an opportunity to return to civilian life as normal economic workers on the same productive basis as any other employee. It is only fair that we supply that opportunity. This seems to be a reasonable request in return for the magnanimous service they have rendered to our country.

STATE PLANS FOR REHABILITATION

MICHAEL J. SHORTLEY

Director, Office of Vocational Rehabilitation, Federal Security Agency
WASHINGTON, D. C.

No group in the country is more fully aware of the need for rehabilitation of the disabled than are industrial physicians, who, more than any of us, see the entire cycle from the time a patient is brought for treatment immediately after injury, through all the long process of emergency surgery, hospitalization, convalescence, fitting of the prosthetic appliance, to the time when advice is asked concerning the most suitable type of training and placement for the handicapped person in employment. No group is more fully aware of the problem and no group has done more to aid in stimulating and carrying out measures for aiding the disabled to recover their usefulness and to become again self-supporting members of the industrial community. I greatly appreciate having the opportunity to meet with you today, to offer you our aid in meeting this rehabilitation problem, and to seek your help in planning our new program.

I am sure there is no dispute among us as to the importance of furnishing rehabilitation service to the disabled. However, we hope that the number of persons who require this service will be reduced year by year, since rehabilitation is the last link in the chain of services which begins with another of your major responsibilities: prevention of disease and injury. But the day is yet far off, I am afraid, when all disabilities will be prevented, and until then we shall continue to be confronted with persons who need physical and vocational rehabilitation.

On the program today are those who have seen at first hand the contribution that can be made by handicapped workers, suitably trained and suitably placed. They know from personal observation that the handicapped are among the most productive, efficient and reliable employees in industry. They know too the technics of training and placing these workers to the best advantage. I shall not labor the point; nor shall I go into the problems of the rehabilitation of men disabled in the armed services which have been so ably presented by the distinguished speakers representing the Army, the Navy and the Veterans Administration. My part will be to outline the new federal-state program for other handicapped persons which was recently initiated by the Congress in passing the Vocational Rehabilitation Act Amendments of 1943. We shall be concerned with all handicapped persons whose employability can be improved, and these will include among others the selective service rejectees, veterans with non-service connected disabilities, and war disabled civilians (i. e. merchant seamen, members of the aircraft warning service, civil air patrol and U. S. citizens defense corps) injured in line of duty.

First, I should like to indicate briefly the dimensions of the problem we are facing. Probably the most reliable data on the number of disabled persons in the United States is found in the National Health Survey, carried out under the direction of the Public Health Service in 1935. In that peacetime year there were no less than 23 million persons in the country with physical handicaps severe enough to affect employability. Sixteen million of these were of working age, from 16 to 64 years old. The vast majority of these per-

sons either were suitably employed or could be employed merely through intelligent guidance and selective placement—but about 1,400,000 men and the same number of women, exclusive of those in institutions, were so severely disabled as to require rehabilitation before satisfactory remunerative employment could be possible. Perhaps one fourth of this group would never be employable outside the home or a sheltered workshop even after extensive rehabilitation measures, but employment in ordinary industrial or agricultural pursuits would be possible for at least a million men (and as many of the million women in similar circumstances as wished to seek employment) if they obtained appropriate rehabilitation services. This was true in 1935 and it is probably true today, since it is known that 100,000 of the 800,000 persons severely injured each year are added to the ranks of those who require rehabilitation to obtain useful remunerative employment.

The problem is large, and it is clear that the solution of any major portion of it would mark an important contribution to our economy as well as to the self respect and happiness of the handicapped. It would remove these persons from dependency and turn them into contributors. During 1941, 1942 and 1943 over 12,000 persons referred to us by relief agencies were rehabilitated and placed in employment. It is estimated that the rehabilitation of this group alone effected an annual reduction in the relief rolls during 1943 of \$3,222,527. At the present time it would provide sorely needed manpower for many hard-pressed war industries. It is that solution which Congress has sought in passing the new rehabilitation law.

What, then, are the details of the new program? Who is to conduct it and what are their plans? You will recall that an approach to the problem of civilian disablement was first made by the Congress twenty-four years ago with the Vocational Rehabilitation Act of 1920. Subsequently Congress authorized the use of \$3,500,000 of federal funds annually as grants-in-aid to match state funds for the guidance, training and placement of physically handicapped persons and to provide them with prosthetic appliances necessary for employment. Service was limited to physically handicapped persons and did not include special services for the blind. Federal funds were not available for physical restoration. During the twenty-three years this act was in force, approximately 210,000 persons were rehabilitated into remunerative employment under the program. The case load has increased rather rapidly in the last few years, and in 1942 alone more than 42,000 persons were rehabilitated. These were commendable results considering the limitations of the 1920 act but obviously did not make very great inroads into the potential case load of handicapped persons.

The new law (Public Law 113, 78th Congress), which is known as the Vocational Rehabilitation Act Amendments of 1943, greatly broadens and strengthens the rehabilitation program. Perhaps the most significant new provision is that which enables the federal government to furnish funds for physical restoration. Moreover, the blind are now included, and so are the mentally handicapped, as well as the physically handicapped. The federal fiscal provisions have been considerably liberalized. Instead of having a fixed ceiling for the federal appropriation, the new law authorizes the appropriation of funds necessary to carry out the provisions of the act. For medical care, vocational training and other similar services to the usual groups of handicapped persons, the federal government will

match state funds on a 50-50 basis. For war-disabled civilians, defined as merchant seamen and members of and trainees for the citizens defense corps, civil air patrol, aircraft warning service, the federal government will reimburse the states 100 per cent. Necessary state administrative costs will be reimbursed 100 per cent with federal funds. I think we can say that the new law permits the establishment of a complete rehabilitation service for all persons who would benefit from the services. Of the utmost importance, therefore, are the arrangements made to refer such persons to the state rehabilitation agencies. The entire program in the states will be administered by the state boards of vocational education and the state agencies for the blind. We are in the process of making cooperative agreements with some twenty-three federal agencies whose paths cross ours so as to make sure that all potential beneficiaries are referred to the state agencies operating the program. Moreover, we are urging the states to work out agreements with the workmen's compensation commissions, the welfare departments, health departments, crippled children's agencies and other public and private groups such as hospitals, physicians, charitable organizations and the Red Cross under which referrals will be made to the rehabilitation service.

In general, the rehabilitation services available under this program will include medical and vocational diagnoses, vocational guidance, physical restoration, vocational training, funds for maintenance during training, and placement in remunerative employment. All handicapped persons eligible for service may receive medical and vocational diagnosis, guidance, training and placement services irrespective of their financial status. However, with regard to physical restoration services, prosthetic appliances, maintenance during training and instructional supplies such as books and tools it must be shown that the applicant is unable to pay for these services or supplies from his own resources before federal contributions are available.

There are certain other limitations with respect to physical restoration services. In the first place, the services to be rendered must be expected to reduce substantially or eliminate the employment handicap. Also the treatment may only be given for conditions which are "static." It is clear that this term was intended by Congress to differentiate the conditions to be treated under this program from ordinary acute illness or injury. We do not feel that it was intended to mean that we must await the end results of a long term illness, however, before starting service. For example, it would not be necessary to await the onset of total blindness before a person with glaucoma could be treated under this program. Hospitalization is limited to a period of ninety days for any one disability. This limitation was clearly intended to distinguish our program from one providing custodial care for chronic illness. In short, we can say that the rehabilitation program emphasizes constructive medical measures designed primarily to assist a handicapped person to obtain suitable remunerative employment. If we are to succeed in the physical restoration of handicapped persons we shall require the services of the best qualified specialists and the superior facilities of the most modern hospitals.

In establishing the physical restoration program in the federal office, we have sought medical advice both from within the government and from outside. By agreement with the Surgeon General of the U. S. Public Health Service, our physical restoration program is being directed by Public Health Service medical

officers assigned to our office. As time goes on we hope for the assignment of other medical officers from the Public Health Service to carry responsibility for us in various specialized fields. As a result of our conferences with nongovernmental agencies, the administrator of the Federal Security Agency has appointed a professional advisory committee with representatives from all the fields of medicine which will be of primary importance in the rehabilitation program, including internal medicine, orthopedics, tuberculosis, psychiatry, industrial medicine and physical therapy. I am happy to say that two of the men on the program today have accepted appointments on this committee, namely Dr. Raymond Hussey and Dr. H. A. Vonachen. The professional advisory committee will meet in the near future and we shall look to it for advice with regard to standards to be recommended to the states regarding quality of services, rates and methods of payment, and other matters of professional policy on this program.

After consultation with the national professional advisory committee we expect to be able to recommend to the states certain fundamental principles about the operation of their physical restoration programs. For one thing we shall hope that the state boards of vocational education and the state agencies for the blind will seek to establish close cooperation with existing state agencies in related fields, such as state health departments, crippled children's agencies and medical boards of workmen's compensation commissions. We also hope to encourage the states to look to the medical and allied professions for advice through the formation of state professional advisory committees and through appropriate medical consultation in their day to day operations. It is clear that the medical work in rehabilitation will often be of a specialized character, and in work of this type it seems to us of the utmost importance that standards be established which will assure our handicapped clients of medical services of high quality. It is well worth the cost in public funds if we are able to assist an individual to change from a state of dependency into one in which he can contribute to the productive effort of the community. It is apparent that a prudent use of public funds requires that we obtain for him medical service of the highest quality.

In encouraging these standards, however, we hope at the same time that the states will utilize all existing professional resources to their fullest capacity, and we do not believe that it will be necessary to attempt creation of new ones except in most unusual circumstances. We shall have our special problems to which, as time goes on, much time and attention will be devoted. I am thinking particularly of work in the fields of psychiatry, tuberculosis, ophthalmology and otology, in all of which much remains to be done that was not possible under the old law. I hope we shall see special projects for service in these fields established in various states, attempting to discover the most satisfactory methods of rehabilitating persons with these handicaps. New projects will differ considerably in character from one state to another, and through the experience of the various states we shall be able to learn much in fields which have hitherto not been explored thoroughly. One of the functions of our national office will be to utilize the experience of one state to assist another in establishing programs of similar types. Our principal job is to give the states such guidance and assistance as will enable them to develop and operate effective programs. We shall be in a position to extend the practical results of successful programs in some states to the other states.

What should be our goal? It seems to me that, ideally, we will attack this backlog of a million and a half and the annual increment of 100,000 to 200,000 handicapped persons with all the vigor we can command and, by means of physical restoration and vocational training, establish every person possible in suitable remunerative employment. This will take time, but it is our ultimate aim and, with your help and that of the many others interested in this constructive work, we shall attain our goal.

CURRENT DEVELOPMENTS AFFECTING THE PHYSICIAN'S ROLE IN MAN- POWER UTILIZATION

CLIFFORD KUH, M.D.

OAKLAND, CALIF.

AND

BERT HANMAN

SAN FRANCISCO

In August of 1943 the West Coast Office of the War Manpower Commission sponsored a new technic for the selective placement of workers in accordance with their physical capacities. It was at this time also that the need became apparent for a selective placement program for Kaiser workers in the Richmond Shipyards. About six months previous to this date, however, we had met under circumstances unrelated to our present official connections and in a preliminary way had worked on the concepts of this new technic. It was natural, therefore, that the Kaiser Shipyards should become its first testing ground. Although it is still in a developmental stage, the War Manpower Commission has already adopted the technic as the official national procedure for placing all workers on jobs in accordance with their physical capacities, with particular reference to the placement of the war-disabled.¹

PHYSICAL DEMANDS AND CAPACITIES ANALYSIS

The technic is named Physical Demands and Capacities Analysis. Its essential feature is the analysis of both the physical demands of jobs and the physical capacities of workers along the same basic pattern. The adoption of the identical pattern for the dual purpose of analyzing both the worker and the job facilitates the matching of the two, while at the same time the pattern itself provides a breakdown into specific factors which assists in more accurate placement.

In the framework of the pattern both physical and environmental factors are considered. It was found that both the physical demands of the job and the physical capacities of the worker can be analyzed under twenty-five major headings, such as lifting, carrying or handling. It was also found that both the environ-

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From the Permanente Foundation Hospitals, Kaiser Shipyards (Dr. Kuh) and the Regional Staff, War Manpower Commission (Mr. Hanman).

Cooperation with the authors was extended by Dr. Sidney R. Garfield, medical director, Dr. Cecil C. Cutting, chief of staff, and Dr. Morris F. Collen, director of medical department, Permanente Foundation Hospitals, Oakland and Richmond; by Clay P. Bedford, general manager, George Miller Jr., labor relations director, C. E. Brindson, personnel director, Dave Kaye, safety engineer, and M. Myers and C. P. Emery, rate bureau, Kaiser Shipyards, Richmond; and by William K. Hopkins, director, and William B. McCarter, chief of Bureau of Manpower Utilization, War Manpower Commission, Region XII, San Francisco.

1. Selective Placement for the Handicapped, United States Employment Service, War Manpower Commission, Washington, D. C., December 1943. Utilization of Womanpower: Employment of Women in the Shipbuilding Industry, Division of Occupational Analysis and Manpower Tables, Bureau of Manpower Utilization, War Manpower Commission, Washington, D. C., November 1943. Ex-Service Men.²

mental demands of the job and the environmental capacities of the worker can be analyzed under twenty-five major headings, such as inside, outside, high temperature or low temperature. In all, fifty physical and environmental headings or factors have become the essentials of the pattern selected for analyzing both worker and job.

Let us consider, for example, the physical factor of lifting. The analyst determines how much lifting, if any, a specific job requires. The physician estimates whether or not the worker shall be restricted in respect to lifting and, if so, the maximum weight he can safely lift. Therefore, in respect to the physical factor of lifting, it can be said whether or not the worker is suited to the specific job. The other physical factors are similarly treated.

Permanent Foundation Hospital ☒ Oakland, California
Permanent Field Hospital ☐ Richmond, California

PHYSICAL CAPACITIES ANALYSIS Hospital No. 25609

Name John Doe Sex M Age 40 Ht. 70 Wt. 160 Badge No. 1019
Job Arc Welder Job Location Outfitting Dock (Hulls) Shift G Yard No. 3

PHYSICAL FACTORS		ENVIRONMENTAL FACTORS	
<input checked="" type="checkbox"/> 1 Lifting	<input checked="" type="checkbox"/> 15 Twisting	<input checked="" type="checkbox"/> 31 Inside	<input checked="" type="checkbox"/> 61 Vibration
<input checked="" type="checkbox"/> 2 Carrying	<input checked="" type="checkbox"/> 16 Reclining	<input checked="" type="checkbox"/> 32 Outside	<input checked="" type="checkbox"/> 62 Noise
<input checked="" type="checkbox"/> 3 Handling	<input checked="" type="checkbox"/> 17 Sitting	<input checked="" type="checkbox"/> 33 High Temperature	<input checked="" type="checkbox"/> 63 High Places
<input checked="" type="checkbox"/> 4 Pushing	<input checked="" type="checkbox"/> 18 Reaching	<input checked="" type="checkbox"/> 34 Low Temperature	<input checked="" type="checkbox"/> 64 Cramped Quarters
<input checked="" type="checkbox"/> 5 Pulling	<input checked="" type="checkbox"/> 19 Fingering	<input checked="" type="checkbox"/> 35 Sudden Temp. Changes	<input checked="" type="checkbox"/> 65 Wet Quarters
<input checked="" type="checkbox"/> 6 Climbing	<input checked="" type="checkbox"/> 20 Feeling	<input checked="" type="checkbox"/> 36 High Humidity	<input checked="" type="checkbox"/> 66 Working With Others
<input checked="" type="checkbox"/> 7 Jumping	<input checked="" type="checkbox"/> 21 Talking	<input checked="" type="checkbox"/> 37 Low Humidity	<input checked="" type="checkbox"/> 67 Working Around Others
<input checked="" type="checkbox"/> 8 Running	<input checked="" type="checkbox"/> 22 Hearing	<input checked="" type="checkbox"/> 38 Toxic Conditions	<input checked="" type="checkbox"/> 68 Working Alone
<input checked="" type="checkbox"/> 9 Walking	<input checked="" type="checkbox"/> 23 Seeing	<input checked="" type="checkbox"/> 39 Radiant Energy	<input checked="" type="checkbox"/> 69 Day Shift
<input checked="" type="checkbox"/> 10 Standing	<input checked="" type="checkbox"/> 24 Color Vision	<input checked="" type="checkbox"/> 40 Moving Objects	<input checked="" type="checkbox"/> 70 Swing Shift
<input checked="" type="checkbox"/> 11 Stopping	<input checked="" type="checkbox"/> 25 Depth Perception	<input checked="" type="checkbox"/> 41 Mechanical Hazards	<input checked="" type="checkbox"/> 71 Graveyard Shift
<input checked="" type="checkbox"/> 12 Crouching	<input checked="" type="checkbox"/> 26	<input checked="" type="checkbox"/> 42 Electrical Hazards	
<input checked="" type="checkbox"/> 13 Kneeling	<input checked="" type="checkbox"/> 27	<input checked="" type="checkbox"/> 43 Exposure to Burns	
<input checked="" type="checkbox"/> 14 Crawling	<input checked="" type="checkbox"/> 28	<input checked="" type="checkbox"/> 44 Explosives	

(Blank space = Full capacity. ☒ = Partial capacity as qualified below. O = No capacity.)

DETAILS OF PHYSICAL FACTORS: May lift and carry up to 25 pounds 6 times per hour.
May intermittently climb up and down ramps, stairs, or ladders up to _____ % of work period.
May engage in activities numbered _____ up to 2/3 of work period.
May engage in activities numbered 9, 10, 11, 12, 13 up to 1/3 of work period.
Sight: _____
Hearing: _____
Other: 4 + 5 effort equal to 1 + 2.

DETAILS OF ENVIRONMENTAL FACTORS:

Date 1-27-1944 Physician Richard Roe M. D.
(This space for record of Placement Officer)

New Job Assigned _____ Job Location _____ Shift _____ Yard No. _____
Hospital Notified _____ 194 _____ Signed _____
(To be completed by Placement Officer, detached, and returned to Hospital of origin)

Name _____ Badge No. _____ Hospital No. _____
New Job Assigned _____ Job Location _____ Shift _____ Yard No. _____
Date _____ 194 _____ Signed _____

Form 1.—Completed original copy of physical capacities analysis which physician sends to placement officer. Carbon duplicate and triplicate copies on which the diagnosis appears are filed in the patient's clinic record and central hospital file, respectively. Diagnosis in this case: Rheumatic heart disease with mitral stenosis, enlarged right ventricle, sinus rhythm, compensated, functional capacity grade II.

Likewise, in respect to the environmental factor of working outside, the analyst determines whether or not the specific job requires working outside. The physician rules whether or not the worker can work outside. Therefore, in respect to the environmental factor of working outside, it can be stated whether or not the worker is suited to the specific job. The other environmental factors are similarly treated.

Following the basic pattern, the physical demands of the jobs at Richmond Shipyard Number Three have been analyzed by a staff of ten analysts employed by the Kaiser organization and trained and supervised by Hanman.² All jobs were analyzed with the exception

of clerical occupations and skill levels above journeyman. The analysis netted 493 physical demands analysis schedules, which were based on approximately 2,500 observational analyses. The data so obtained will serve for the other Kaiser shipyards and will subsequently be released to the entire shipbuilding industry.

And again, following the same basic pattern, the physical capacities of workers at the Richmond Shipyards have been analyzed for selective placement on jobs. These workers, since the labor agreements prohibit preplacement physical examinations, have been individuals who presented themselves at the Permanente Foundation Hospitals in Oakland and Richmond for treatment either for industrial disabilities or for non-industrial complaints under the prepaid health plan operated for Kaiser shipyard workers by Dr. Sidney R. Garfield and his associates. Unsatisfactorily placed workers have been uncovered during their course of treatment either as inpatients or as outpatients. The entire hospital or clinic chart with its physical and laboratory examination data becomes the basis for the physical and environmental analysis. During the three month period from Oct. 1, 1943 through Dec. 31, 1943 the physical capacities of over 1,000 workers have been analyzed by over fifty of the eighty staff doctors—for these physicians a new role in manpower utilization. These doctors have been assisted in this assignment by staff conferences and by a specially prepared manual which includes directives and definitions of terms.³

MATCHING WORKER AND JOB

A completed physical capacities analysis showing the capacities of a worker is reproduced in form 1. For comparison, form 2, a completed physical demands analysis, is shown to indicate the physical and environmental demands of a job. It is to be observed that the two forms have the same basic pattern.

The physical capacities analysis is prepared by the physician in triplicate with the use of carbon paper. The original form is sent to the placement officer. It is to be noted that the clinical diagnosis, which is not needed for placement, does not appear on the original form. The duplicate form is attached to the worker's clinic record, and the triplicate is kept for reference in a central file in the medical department. The diagnosis appears on the latter two records in the space provided and thus preserves the confidential nature of the diagnosis. After the worker has been placed, the placement officer completes the lower section of the original record. He indicates the new job assigned on a detachable part of the form and sends it to the medical department for attachment to the patient's clinical record. Record of the placement is also noted on the triplicate form in the central medical reference file.

The example given in form 1 is that of an arc welder working on the hulls at the outfitting dock during the graveyard shift, who was found after study in the clinic to have rheumatic heart disease with mitral stenosis, enlarged right ventricle, sinus rhythm, compensated, functional capacity grade II.³ The patient's job requires considerable climbing and lifting and carrying up to 50 pounds. The physician, therefore, has recommended that the worker be placed on a new job and has indicated his physical capacities as follows: He may lift and carry up to 25 pounds six times per hour and push and pull with equal effort. He may walk, stand, stoop, crouch and kneel up to one third of the work period

2. Physical Demands and Capacities Analysis, Division of Occupational Analysis and Manning Tables, Bureau of Manpower Utilization, War Manpower Commission, San Francisco, October 1943 (a manual for physician, job analyst and placement officer).

3. Nomenclature and Criteria for Diagnosis of Diseases of the Heart, New York, Heart Association, 1943.

but may not climb, jump, run, crawl or work in a reclining position. He must not work outside and must avoid sudden temperature changes and wet quarters. He must avoid working on swing and graveyard shifts. The entire form is completed with a minimum of writing by the physician.

A new job, which has been determined to be suitable for this worker, is that of welder in the reclamation shop (form 2). When reference is made to the job analysis it will be seen that the worker satisfies the requirements of this job. First there is no change in skill requirements. As to the physical factors, the job does not require lifting and carrying over 10 pounds (for 5 per cent of the work period). Pushing and pulling are not required. Walking, standing and stooping (in respect to which the worker is restricted up to one third of the work period) are required up to 10 per cent of the work period only. Not one of the other activities for which the worker is restricted is required by the job. Sitting, reaching and seeing are required,

PHYSICAL DEMANDS ANALYSIS

Job Title: Welder, Arc, Production (Journeymen or Trainee)
Job Location: Reclamation Shop, Richmond Shipyard Number Three
Dictionary Title: Welder, Arc Dictionary Code: L-95.020

PHYSICAL FACTORS		ENVIRONMENTAL FACTORS	
X 1 Lifting	O 15 Twisting	X 31 Inside	O 45 Vibration
X 2 Carrying	O 16 Reeling	O 32 Outside	O 46 Noise
X 3 Handling	X 17 Sitting	X 33 High Temperature	O 47 High Places
O 4 Pushing	X 18 Reaching	X 34 Low Temperature	O 48 Cramped Quarters
O 5 Pulling	O 19 Fingering	O 35 Sudden Temp Changes	O 49 Wet Quarters
O 6 Climbing	O 20 Feeling	X 36 High Humidity	X 50 Working With Objects
O 7 Jumping	O 21 Talking	X 37 Low Humidity	X 71 Working Around Others
O 8 Running	O 22 Hearing	X 38 Toxic Conditions	O 72 Working Alone
X 9 Walking	X 23 Seeing	X 39 Radiant Energy	X 73 Day Shift
X 10 Standing	O 24 Color Vision	X 40 Moving Objects	X 74 Swing Shift
X 11 Stooping	O 25 Depth Perception	X 41 Mechanical Hazards	O 75 Graveyard Shift
O 12 Crouching	O 26	X 42 Electrical Hazards	O 76
O 13 Kneeling	O 27	X 43 Exposure to Burns	O 77
O 14 Crawling	O 28	O 44 Explosives	O 78

(X—Required by job O—Not required by job) *See Feather to to.

DETAILS OF PHYSICAL FACTORS: Stands and reaches forward into bin to grasp, lift, and carry steel strips weighing up to 10 pounds about 10 feet to work bench (5%). Sits at bench 30 inches high and reaches forward to handle 1-pound electrode holder during welding process and to handle light wire brush and sledge hammer while cleaning weld (5%). Stands, stoops, and reaches down to handle controls to adjust electric generator (5%). Must be able to see 1/8-inch rod tip at 12 inches. No talking or hearing required. Physical factors similar on day and swing shifts.

DETAILS OF ENVIRONMENTAL FACTORS: Works day and swing shifts only, with and around others, inside Reclamation Shop (100%). Exposed to black-iron welding fumes (90%), to rays from electric welding arcs (100%), to sharp edges of materials (100%), to uninsulated parts of electrode holder (85%), and to hot metals and electric arcs (90%). Environmental factors similar on day and swing shifts.

DETAILS OF HAZARDS: Possibility of respiratory irritation from black-iron welding fumes (90%), of injury to the eyes from rays from electric welding arcs (100%)—(reduced by goggles and hood), of cuts from sharp edges of materials (100%)—(reduced by gloves), of electric shock from uninsulated parts of electrode holder (85%), and of burns from hot metals and electric arcs (90%)—(reduced by hood, gloves, and leather garments). Hazards similar on day and swing shifts.

1. Handling—One Arc: Welders with one artificial and one good arm can perform this job.

Form 2.—Physical demands analysis for the job of arc welder in the reclamation shop of Richmond Shipyard Number Three. The job is suitable for the cardiac patient whose physical capacities are analyzed in form 1. Note that each job analysis includes a description of the effects on the worker of the hazards encountered and how the hazards have been reduced by the safety engineers. (Weather data not shown.)

but for these the worker has full capacity. The job is available on the day shift. Not one of the other environmental factors for which the worker is restricted is required by the job.

The tabulation of the factors in identical pattern at the top of the forms and the use of symbols facilitates matching the worker and job. Blank space indicates the worker has full capacity, the check mark indicates partial capacity, and 0 indicates no capacity. The symbol X indicates that the factor is required by the job, and 0 means that it is not. Explanatory details are given on the forms below the tabulations.

It is interesting to note what additional physical limitations the worker with rheumatic heart disease might have and still be likely to succeed on the job of welder in the reclamation shop without aggravating his physical condition. For instance:

1. One arm, since the job requires but one good arm and an artificial arm.

2. Leg disability, since the job requires walking and standing less than one hour per day.

3. Back disability, since the job requires stooping but 5 per cent of the work period and does not require crouching, kneeling, crawling, twisting or working in a reclining position.

4. Shoulder disability, since the job does not require reaching above shoulder height.

5. Loss of fingers, since the job requires but course handling and does not require fingering or feeling.

6. Deaf-mutism, since the job does not require talking and hearing.

7. Impaired vision, since the job does not require depth perception, color vision or seeing better than 1/8 inch rod tip at 12 inches. . . .

8. Nervous condition (when due to a fear of high places, close quarters or noise), since the job does not require these environmental factors.

9. The worker also might be a woman, pregnant or non-pregnant, young or past middle age, and perform this job successfully.

These placement possibilities are known only because the job has been analyzed. Otherwise many of the possibilities may be missed.

TRANSLATION OF CLINICAL DATA

It is realized that physical capacities may be expressed in relation to intensity, frequency and duration. Lifting and carrying have been selected as most representative of the physical capacities of the worker and space provided for expressing the effort involved as an intensity factor, so many pounds, and a frequency factor, so many times per hour. For simplicity the duration factor, or distance the weight may be carried, is not stated, but it is intended to be a reasonable distance.

Pushing and pulling present special problems because of the numerous body positions which may be required to perform these activities. Pushing or pulling 10 pounds above shoulder height may require more effort than pushing or pulling 100 pounds at waist height. No simple way of expressing capacities for these two factors has yet been devised, and it is therefore assumed that the worker should not expend greater effort in pushing and pulling than in lifting and carrying.

In respect to most of the remaining physical factors the restriction of activity, if any, concerns duration. This applies to walking or standing, for example. Provision is therefore made on the capacities form for indicating restrictions up to one third of the work period or up to two thirds of the work period. It is believed that the physician cannot estimate more closely than in thirds of the work period. Furthermore, it is believed that if the worker can perform an activity for more than two thirds of the work period he can probably perform that activity for the entire work period. Likewise, if restriction is required for less than one third of the work period he should undoubtedly be restricted completely.

The single exception in connection with the last statement is in the case in which the worker climbs, let us say, to a work place and remains there for the entire shift, climbing down at the end of the day or for luncheon or to care for personal needs. To say that the worker can do no climbing would bar him from such a job, whereas the total time required for the effort would be less than one third of the work period, perhaps 5 per cent. Special provision on the form is made for this situation.

Space is also provided on the form for additional entries on hearing, sight, other physical factors and environmental factors. For example, if a worker is restricted in respect to toxic conditions because of skin

sensitivity to certain solvents the physician should indicate the nature of the restriction.

It must be clear that the translation of clinical data into physical capacities presents many problems. No claim is advanced beyond the fact that a start has been made. For example, there may never be a categorical answer to the question of how much lifting should be allowed a specific individual with rheumatic heart disease, grade II. It has been said that the physician's judgment in each individual case may be the only criterion.⁴ Up to the present, in the placement of the shipyard workers, the one question which has been constantly asked is: Does the worker's job aggravate his physical condition? If so, then he should not be allowed to continue on his present job and, if possible, should be changed to another.

In the placement of cardiac patients, four available criteria have been predominately utilized to guide the physicians at Permanente Foundation Hospitals: the electrocardiogram, 6 foot roentgenogram for heart size, physical examination of the heart, and history of previous activity. How much has the patient lifted in the past? If he is robust and has been accustomed to lifting 200 pounds without great effort, then he should be allowed to lift more now than a white collar worker with the same diagnosis. Possibly only a statistical analysis of what happens to selectively placed workers after three, six, twelve or twenty-four months will serve to improve our translation of clinical criteria into physical capacities analysis. The request has been made to the Permanente Foundation, which is engaging in industrial medical research, that funds be appropriated for extensive research in the field of measuring the physical capacities of workers. The Permanente Foundation has already granted funds for the publication of the physical demands information on the shipyard jobs in order to expedite the release of this material by the War Manpower Commission in May 1944.

With the foregoing information available concerning the worker and job, there still remains the task of matching the worker and the job. Essentially this task is the responsibility of the placement officer who uses the information supplied by the physician and the analyst.² Physical demands and capacities analysis may be said to be the common language of the job analyst, the physician and the placement officer. It facilitates an understanding among all three, which has been lacking heretofore but which now makes it possible for them to come together and work toward a solution of the problem of matching the physical characteristics of workers and jobs. Each has his separate task without overlapping, and each is the best qualified person for the task.

The placement officer must likewise match the skill characteristics of workers and jobs. In this task he has been aided by the development of aptitude tests and other placement technics. By careful differentiation all qualifications of a worker for a job can be classified either as a skill or as a physical capacity. It is believed that by coupling a knowledge of the physical characteristics with a knowledge of the skill characteristics the process of matching workers and jobs will be placed on a more scientific basis.

FORMER PRACTICE

Up to the present time the physician doing placement physical examinations usually has either submitted a clinical report, in which case his findings have had to

be interpreted by the placement officer, or he has classified the examinee quite broadly as suitable for heavy, moderate, light, sedentary or no work. These classifications have obviously been subject to equally broad interpretation and thus to misinterpretation. At times the physician may have indicated physical restrictions, as "no climbing or running." Less frequently perhaps he has indicated environmental restrictions for the worker, as "no exposure to dust." Such restrictions have not usually told an adequate story. Likewise, in the field of job analysis the former practice has been to analyze jobs as requiring certain activities, such as walking or standing, to an extent designated broadly as none, little, moderate or great.⁵ These terms have also failed to provide a basis for specific analysis. Now both physician and analyst have a formal pattern which serves to make their respective analyses complete. With specific, paralleling analyses in the hands of the placement officer his task of matching workers and jobs has been simplified and a greater measure of job success has been made possible.

Another approach to the problem of selective placement has been the preparation of job families, or lists of jobs suitable for individuals with specific handicaps, such as one-armed workers.⁶ But such lists of jobs have only supplemental value. From them the placement officer attempts to select a job for the worker. If the placement is to be satisfactory, however, the worker and the job must be individually and scientifically matched none the less. The variation between individuals with identical handicaps is too great for job lists to serve more than a suggestive purpose. Furthermore, the preparation of lists of jobs performable by individuals with certain physical restrictions has the disadvantage of singling out handicapped persons as different from others. By so doing the difficulties attendant on placing such individuals on jobs may be increased.

In physical demands and capacities analysis, on the other hand, lists of the shipyard jobs will be prepared and classified according to the physical demands of the job. For example, one list will be prepared of those jobs which do not require lifting or carrying over 25 pounds. This list of jobs will likely be suitable for those workers whose lifting and carrying capacity is limited to 25 pounds. And again, another list will contain those jobs which require lifting and carrying over 100 pounds. This list will suggest suitable jobs for fully able bodied workers. In short, twenty-five such lists will be prepared and will represent a sifting of the shipyard jobs through a number of screens for the purpose of assisting placement officers in locating jobs which match the physical capacities of individuals, fully able bodied or physically limited. Such assistance is particularly helpful in a situation where preplacement physical examinations are given. Then all workers can be placed in accordance with their physical capacities, including the able bodied worker on the energy consuming job.

5. Special Aids for Placing Navy Personnel in Civilian Jobs, Division of Occupational Analysis and Manning Tables, Bureau of Manpower Utilization, War Manpower Commission, Washington, D. C., May 1943. Occupations Related to Basic Occupations in Synthetic Rubber Monomer Production, Division of Occupational Analysis and Manning Tables, Bureau of Manpower Utilization, War Manpower Commission, Washington, D. C., July 1943.

6. Job Families—Handicapped Series, Division of Occupational Analysis and Manning Tables, Bureau of Manpower Utilization, War Manpower Commission, Washington, D. C. Operations Manual for Placement of Women and the Physically Handicapped, United States Civil Service Commission, Washington, D. C., November 1942. Harvey, V. K., and Luongo, E. P.: Physically Handicapped in Industrial Establishments of the Government: Possibility for Their Increased Placement, J. A. M. A. 121:100 (Jan. 9) 1943.

4. Kessler, H. H.: Accidental Injuries, Philadelphia, Lea & Febiger, 1941, chapter 6.

There is thus evolved a new series of job families which are arranged according to the physical demands of jobs, thus avoiding the disadvantages of previous lists which were arranged according to the physical handicaps of workers. Depending on the physical demands of each job, all shipyard jobs will be listed under one or more of the following headings:

JOB FAMILIES BASED ON PHYSICAL DEMANDS

1. Jobs which do not require lifting or carrying.
2. Jobs which do not require lifting or carrying over 25 pounds.
3. Jobs which do not require lifting or carrying over 50 pounds.
4. Jobs which do not require lifting or carrying over 75 pounds.
5. Jobs which do not require lifting or carrying over 100 pounds.
6. Jobs which require lifting and carrying over 100 pounds.
7. Jobs which do not require climbing.
8. Jobs which do not require climbing over 5 per cent of work period.
9. Jobs which do not require jumping or running.
10. Jobs which do not require walking or standing but do require sitting.
11. Jobs which do not require walking or standing over one third of work period.
12. Jobs which do not require walking or standing over two thirds of work period.
13. Jobs which do not require stooping.
14. Jobs which do not require crouching.
15. Jobs which do not require kneeling, crawling or reclining.
16. Jobs which require handling with one hand and arm only.
17. Jobs which do not require reaching above shoulder height.
18. Jobs which do not require talking and hearing.
19. Jobs which do not require a high degree of visual acuity.
20. Jobs which do not require color vision.
21. Jobs which do not require depth perception.
22. Jobs which are being performed by women at present.
23. Jobs which require being inside 90 to 100 per cent of time.
24. Jobs which do not require sudden temperature changes.
25. Jobs which do not require wet quarters.

There is nothing in physical demands and capacities analysis which singles out the handicapped. The technic applies equally to all persons—male or female, young or old, able bodied or physically limited. All workers are analyzed in respect to physical capacities as objectively as all jobs are analyzed in respect to physical demands. This is as it should be, for the difference between the able bodied and the handicapped is after all but one of degree.

Besides supplying the technic for utilizing individuals who may range from those with severe physical limitations to the most able bodied, it is not to be overlooked that physical demands and capacities analysis is also being developed to assist in the placement of individuals with nervous disorders. One of the chief factors in the job adjustment of such people is the proper working environment. With the analyst preparing specific information on the environmental demands of jobs, and with the physician recommending the proper working environment for such persons, the placement officer is then in a position to place them on jobs with a suitable working environment.

PREPLACEMENT AND REPLACEMENT

Although developed as a transfer or replacement examination for Kaiser workers at the Richmond Shipyards, physical demands and capacities analysis is

equally adapted for preplacement technic. A criticism heretofore of the usual preplacement physical examination procedure, often made by labor unions, is the revealing to management or to the placement officer of the clinical diagnosis. One notable effort in the past to avoid this consisted in supplying management with a summarized version of the clinical findings.⁷ In physical demands and capacities analysis no diagnosis whatever is required, since specific information is given concerning a worker's physical and environmental capacities. The placement officer does not need to know, for example, what illness is behind a weight lifting restriction. With information available concerning the physical demands of the job and the physical capacities of the worker the placement officer has all the information he needs to place the worker. It is hoped that the omitted diagnosis may remove one objection of labor unions to the preplacement physical examination and tend to make such examination more generally available to shipyard workers on the Pacific Coast.

TABLE 1.—*Placement Breakdown, All Richmond Shipyards, Oct. 1, 1943 Through Dec. 31, 1943*

Physician's Recommendation	Richmond Shipyard Number					
	One	Two	Three	Four	PF	Total
1. Selective placement						
a. Placed.....	134	194	124	17	47	516
b. Not placed *.....	48	95	26	11	18	193
c. Not interviewed †.....	6	59	35	2	12	114
d. No information available from placement officer.....	5	17	0	2	0	24
Subtotal.....	193	265	185	32	77	832
2. Work release.....	38	73	67	8	17	203
Total.....	231	438	252	40	94	1,055

* Not placed: Because of no suitable job openings, or because worker refused job due to lower pay involved, expense of changing unions, dissatisfaction with new type of work or dissatisfaction with new job location.

† Not interviewed: Because worker failed to return to yards.

In a preplacement physical examination situation the physician records the clinical findings on the usual physical examination record used by the company. The physician then completes the physical capacities analysis from this record and whatever other clinical information is available.

On release of the physical demands information on shipyard jobs, physicians serving the workers at the Richmond Shipyards are to be supplied with this publication so that they will be able to determine accurately at any time the physical requirements of the worker's job and the need for transfer. The job analyses include for each job a description of the effect on the worker of the hazards encountered and how the hazards have been reduced by the safety engineers (form 2). The physical capacities of the workers who have been transferred will be reevaluated from time to time, and transfer to another job requiring greater or less physical effort will be recommended as indicated by the examination.

PLACEMENT EXPERIENCE

The suggestion was previously made that the ultimate evaluation of the physician's task of converting clinical data into physical capacities analysis may be a statistical analysis of the results obtained. Accordingly,

7. Physical Examinations of Industrial Workers, Madison, Wis., Industrial Commission of Wisconsin, 1939.

and even though the selective placement program at the Kaiser Shipyards has been in effect but a short time and was started before the job analyses were available, a statistical summary was undertaken. On the whole the findings are encouraging, as shown in tables 1, 2 and 3.

TABLE 2.—Disability Breakdown, All Richmond Shipyards, Oct. 1, 1943 Through Dec. 31, 1943

Disability Breakdown	Selective Placement Recommended by Physician	Work Release Recommended by Physician	Total
Cardiovascular.....	161	41	202
Respiratory.....	127	70	197
Gastrointestinal.....	30	12	42
Orthopedic.....	256	33	289
Conjunctivitis and dermatitis..	104	21	125
Hernia.....	44	2	46
Pregnancy.....	24	2	26
Miscellaneous.....	106	22	128
Total.....	852	203	1,055

It is to be noted that among the workers whose placement success was studied in detail there were only three unsuccessful placements due to physical factors (table 3). These include, first, a welder with allergic conjunctivitis. He was given the job of flanger, where he was still exposed to welding fumes which aggravated his condition. Second, a woman scaler with cramps of the right wrist and shoulder sustained from using a vibrating tool was given the job of laborer, which resulted in accentuation of the pain. Third, a pipefitter on the graveyard shift complained of inability to sleep during the daytime. He was changed to the day shift without relief of his insomnia.

It is felt that the relatively few unsuccessful placements due to physical failure speak well for physical demands and capacities analysis as a placement technic. If used in a preplacement program as well as in a replacement program, the technic would undoubtedly prove of even greater value.

COORDINATION OF PROGRAM

Also the selective placement program has served a secondary purpose. It has been the justification for management, safety engineers, personnel officers, training coordinators, counselors, job analysts and physicians to get together in conference, something which had never happened before the program was effected. One such conference recommended that management establish a uniform policy for the shipyards whereby women employees who become pregnant may continue working as long as seven months at suitable employment within their craft, depending on the physician's physical capacities analysis for individual cases.

The Kaiser Shipyards are now planning an extensive training program for war veterans, and the physical demands and capacities analysis technic is to be made a part of this program. It is hoped that the Army and Navy may be encouraged to use the physical capacities analysis technic for evaluating the physical capacities of discharged veterans so as to facilitate veterans' employment in industries adopting physical demands and capacities analysis. The technic has already been the subject for comment in literature reaching industrial management.⁸ It is hoped also that arrangements may be made for exchanging information concerning official

industrial placement technics for war veterans with our Allies, notably England and Russia.

It becomes increasingly clear that when an industrial placement program is analyzed on the basis of its physical and environmental factors the opportunity is presented for the application of all that medicine has taught concerning the evaluation and preservation of physical health, and that industrial hygiene has taught concerning the control of environment. Forward looking placement programs will interact with industrial medicine and hygiene to their mutual advancement, with implications for better medicine and employment practice now and in the postwar world.

SUMMARY

In a program of physical demands and capacities analysis a new technic has been evolved in which a set of physical and environmental factors forms a basic pattern which the job analyst uses to analyze the physical demands of jobs, the physician uses to evaluate the physical capacities of workers, and the placement officer uses to match the physical capacities of workers and the physical demands of jobs:

Some advantages of the program are that: It specifically defines the physical capacities of workers and the physical demands of jobs. It overcomes shortcomings of previous approaches, such as the classification of physical capacities in terms of sedentary, light, moderate and heavy work and the classification of physical demands in terms of none, little, moderate and great. It is adapted for preplacement and replacement

TABLE 3.—Study of All Day Shift Placements Made in Richmond Shipyard Number Three* Oct. 1, 1943 Through Dec. 31, 1943

Placement Classifications	Disability Breakdown							Total
	Cardiovascular	Respiratory	Gastrointestinal	Orthopedic	Conjunctivitis and Dermatitis	Hernia	Pregnancy	
Successful placement ^a	7	12	1	10	1	1	1	36
Unsuccessful placement due to skill failure ^b	..	1	..	1	..	..	..	2
Unsuccessful placement due to physical failure ^c	..	..	..	1	1	..	..	3
Left company because of other causes ^d	..	3	..	8	3	2	1	27
Total.....	7	16	1	20	5	3	2	68

* During Jan. 26-29, 1944 the placement officer personally interviewed both worker and supervisor on each person still employed and checked with the personnel department on each person no longer employed. This information was classified as follows:

- Successful placement: Worker is fulfilling the skill and the physical requirements of the job without aggravating his physical condition.
- Unsuccessful placement due to skill failure: Worker failed to fulfill the skill requirements of the job (having fulfilled the physical requirements with his physical condition).
- Unsuccessful placement due to physical failure: Worker failed to fulfill the physical job without aggravating his physical condition (having fulfilled the skill requirements).
- Left company because of other causes: Worker fulfilled the skill and the physical requirements of the job without aggravating his physical condition but left the company after being selectively placed for such reasons as to return to farm, to return to business, transportation difficulties, domestic problems and personal conflict with supervisor.

evaluation. It presents a positive approach, emphasizing physical capacities, not medical diagnoses or physical handicaps. It preserves the confidential doctor-patient relationship. It considers physical and environmental factors. It is adapted for the selective placement of all workers—male or female, young or old, emotionally stable or unstable, able bodied or physically limited—and particularly for the placement of the war disabled.

IS THE PRESENT SYSTEM OF OCCUPATIONAL DISEASE COVERAGE ADEQUATE?

RUTHERFORD T. JOHNSTONE, M.D.
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Adequate occupational disease coverage must be discussed under three headings: (a) What is the present system? (b) What is adequate coverage? and (c) What is an occupational disease?

As far as the present system of coverage is concerned, we know that some states have no coverage of any type; some include all occupational diseases, while the remainder have adopted the schedule system. Obviously, with such a variation in the methods employed, adequate coverage in America does not exist despite the fact that in principle the workmen's compensation act was intended to cover all industries and all workmen. According to the latest statistics of which I am aware, not more than 40 per cent of the total gainfully employed workers are actually protected. In some instances this is due to a failure in coverage provisions which exclude, for example, the casual worker or the domestic. In other instances it is due to certain groups refusing to elect to come within the provisions of the act, as, for example, the farmers.

As to the differences between the schedule system and the all inclusive system, I need not enter into any discussion. At this same meeting last year Mr. Henry D. Sayer outlined the demarcations very well. Such descriptions will also be found in almost every annual bulletin of the United States Department of Labor, where the minutes of the sessions of the International Association of Industrial Accident Boards and Commissions appear. I wish only to go on record as believing that the schedule system is not desirable. While it may be true that any excluded occupational disease can be included in the schedule at the next legislative session, there is not sufficient assurance that it will be. If the purpose of the act is to compensate all workmen, it should do so from its inception and not exclude any one disease. It should not be necessary for one or more workmen to become martyrs in order that the law may function for those subsequently exposed.

By objecting to the schedule system I do not claim the all inclusive system to be without fault; nor can its most loyal adherents do so. The primary objection resides in the very features which the framers of the compensation act tried to avoid. The originators hoped to dispense with prolonged and expensive litigation. Mr. Robert Watt has stated that the purpose of compensation is hindered by the "cleverest and shrewdest lawyers that the insurance companies can produce." I don't believe this to be the case. In my experience I have never found an attorney for an insurance company express any desire to contest a claim when informed that the facts of the case sustained the workman. On the other hand, it is the unscrupulous lawyer representing the claimant who persists in litigation regardless of the merits of the case in order that he and not the poor workman may gain. The all inclusive system permits the appellate procedure, which is a distinct disadvantage to the injured worker, since it involves all of the evils of the common courts. On page 128 of Bulletin No. 672, issued by the United States Department of Labor, we find the words "Those

who reap a profit from litigation have in many localities led workers to overestimate the value of their constitutional right to court controversy in compensation cases, and the worker has seldom examined the argument either as to its applicability to compensation procedure or the cost of such rights to him." Without further discussion of the all inclusive system it can be stated that while it is the method best designed to protect the worker, it fails of its purpose because its scope is such as to permit vacillation. This is true whether we attribute it to the greed of the insurance interests, to the worker's legal "ill adviser" or to the incompetence of the medical profession.

Is it possible that in trying to correct the faults too frequently attributed to administrative weakness, the employer's greed or the employee's ignorance we are overlooking the chief stumbling block to equitable administration of the act as it pertains to the occupational diseases, namely the medical profession? I feel certain that most of the difficulty in the just dispensation of occupational disease claims is directly due to incompetent medical opinion. From this indictment I exclude the experienced industrial physician. Day in and day out this group render an interested, honest and painstaking service to the workers of America. I defy any one to challenge the validity of that statement other than to admit the occasional exception common to all rules.

The truth is that, in matters of industrial medicine, medical incompetence is found in the frock coated, uptown doctors who have never condescended to cross the tracks into the dirty atmosphere of an industrial plant; who mentally have never permitted their minds to become soiled by reading books or articles pertaining to this type of medicine. Too frequently these gentlemen are specialists who represent the best thought in medicine, who teach in our medical schools and whose renown is unfortunately recognized by the accident commissions, but they have no more knowledge of the occupational diseases than I have of Polynesian folklore. Let me give you an example of erroneous presumption, which can be duplicated a thousandfold in the files of any accident commission:

A middle aged man was engaged for four months in an operation which involved the use of carbon tetrachloride. It was a closed process done in the open yard. One night he suffered an attack of chest pain which was diagnosed as due to coronary sclerosis and substantiated by the electrocardiogram. A heart specialist whom he consulted noted in the occupational history the use of carbon tetrachloride. He informed the patient that possibly his heart condition was due to this exposure. Although the workman had not previously considered his occupation as the cause of his disability, he naturally filed a claim before the industrial accident commission. When questioned as to the basis for his opinion, the doctor stated that somewhere he had read an article which mentioned certain solvents such as carbon tetrachloride as a possible cause of heart disorder. There you have a perfect example of the type of loose thinking which is permitted in litigation of occupational disease claims. The article¹ in question suggested that gases from certain solvents might be capable of inducing ventricular fibrillation. Note the fallacy of the assumption on the part of the heart specialist. The author of the article had in mind acute

exposure to excessive concentrations as it might be related to disturbance of the pacemaker of the heart. Neither by word nor by insinuation did he imply that sclerosing of the coronary vessels could occur. As for the patient, he was never exposed to any carbon tetrachloride and at no time exhibited a single sign or symptom of this disease.

It has frequently been stated that the occupational diseases cannot be defined. Dr. Raymond Hussey committed himself to that point of view at this same meeting one year ago and then proceeded to describe beautifully the characteristics of an occupational disease. I fail to comprehend why each occupational disease cannot be defined within acceptable limits. On what basis have pneumonia, diabetes, syphilis, scarlet fever and most of the other diseases been established? Does not the student in medical school recognize the earmarks of a cardiac syndrome because through the years the Mac-Kenzies, Lewises and Whites have defined it for him? Is there any reason why experience, established authority, proved etiology, pathology and the clinical picture cannot be applied to the occupational diseases? Is there something inherently different about them which defies delineation?

The description which Ramazzini gave to certain trade diseases more than a century ago has not been greatly improved on through the passing years. But when newer processes induced new types of ill health in workmen the Hamiltons, McCords, Hayhursts, Smythes, Kehoes and others whom I should like to mention have described the resulting entities in a manner no less accurate than the customary textbook description of the communal diseases. Because of the investigative efforts of those who have preceded me, I feel I can be as certain of my diagnosis of an occupational disease as I can of a communal disease. Indeed, in most instances the industrial physician has access to more accurate information than the general practitioner has in his field. By determining the presence of a noxious agent, by measuring its degree of concentration, by noting the length of exposure, by using laboratory aids and then by evaluating all these facts with the clinical picture, one can arrive at a diagnosis with a high degree of accuracy.

In summary, an attempt to answer the question found in the title of this paper warrants the assumption of the following facts:

1. A system of complete coverage for the occupational diseases is desirable and is the only system which will fulfil the philosophy of workmen's compensation.
2. The occupational diseases are definite entities and are as definable as the nonindustrial diseases, if not more so.
3. The reason why they have appeared vague and ambiguous is the disinterest and inexperience of the medical profession.
4. Administrators of the act render their decisions on the basis of the evidence presented. If the medical evidence is contrary and illogical, equitable decisions cannot be expected.
5. Insurance companies and employers will accept the complete, all inclusive coverage system if assured that medical opinion is competent and not of the vacillating type now so prevalent. Let those few companies who may object stew in their own prejudices.

If a complete coverage system is the only equitable form of workmen's compensation, how can it be made a workable reality?

1. This can be brought about by medical education of the student and practicing profession. That some steps are being taken in that direction is apparent, but it is more apparent that they are not very bold, accelerated steps. The Council on Medical Education and

Hospitals nods its head in affirmation of this need but takes no concerted action. Even as late as one year ago the Advisory Board of the Medical Specialties stated that there was no such thing as a specialty of "industrial medicine." Such a statement is contrary to the nationwide demand for and appraisal of industrial medicine. Apathy and indifference on the part of those who control medical education is retarding the progress of industrial medicine. As long as the profession at large remains untutored, any type of compensation insurance will misfire in its true purpose.

2. The Committee on Workmen's Compensation of the Council on Industrial Health could gain certain of the objectives expressed in this paper if it joined efforts with the International Association of Industrial Boards and Commissioners, with insurance groups and with labor to formulate unified action regarding the unsolved problems in workmen's compensation. There is too great a variance in the laws of the various states as to the meaning of the act and as to its administration. While it is true that the doctor should not attempt to be a lawyer, certainly the law needs medical aid in determining a more adequate, sane and just attitude toward an injured or ill workman. Here is a challenge for leadership, and the profession should assume it.

It has been repeatedly pointed out that the toll of killed and injured in industry exceeds that of the war casualties. How was it possible to assemble an organization of complete medical care for war in such a short time? Because an aroused profession bent its utmost effort to meet the challenge. But what is the difference between the war wounded and the industrially injured? Should not the promotion of health and the saving of life be the same in the two instances? Cannot the profession be aroused to recognize the need to educate all doctors regarding industrial medicine? I think it can, and now is the time. Only when this occurs will there be an intelligent dispensation of medical care in industry and an equitable administration of workmen's compensation.

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Biblical Literature Pertaining to Medicine.—The ancient Jewish conception of disease clung closely to that of the Babylonians, Assyrians and Egyptians. They believed that illness and epidemics were the manifestations of the wrath of God, and they sought relief in prayer, sacrifice and exemplary life. But unlike their neighbors they left no medical treatises or documents. Biblical literature, however, contains a few scattered references pertaining to medicine in general, some of which are of a gynecological nature. Of greatest interest in the Old Testament are the laws referring to social and personal hygiene—laws devised to serve the community and the race. In this branch of medicine, in prophylaxis and sanitation, they excelled. Striking was the intelligence displayed by Jehovah in the promulgation of sanitary laws intended for the protection of the children of Israel. In matters other than religion the Egyptians had long supplied them with a basis for their culture. Moses is said to have learned his medicine in Heliopolis. Solomon was skilled in the medical magic of the Nile, and the Prophets were not wholly devoid of the knowledge of medicinal herbs, although some of their cures were miraculous. Elijah brought to life a child apparently dead, while his disciple Elisha performed a similar cure. Medicine was an integral part of the religion of Israel; rabbis and physicians frequently met in conclaves and mingled in learned discussions on medical subjects. It is remarkable that they recognized symptoms as a manifestation of inward changes (internal pathology)—a view which was not clearly voiced by the Hippocratic School and only vaguely referred to by Galen.—Ricci, James C.: *The Genealogy of Gynaecology*, Philadelphia, Blakiston Company, 1943.

Clinical Notes, Suggestions and New Instruments

PENTACHLORINATED NAPHTHALENES IN INDUSTRY

LAWRENCE H. COTTER, M.D., NEW YORK

In normal times an extensive outbreak of poisoning among workmen engaged in a chemical procedure could be, and would be, met by closing down the plant and total elimination of the hazard until a substitute process had been found. Under the exigencies of war it is not possible to relegate such problems to the field of time-consuming research. No factory engaged in a war contract can suspend operations even for an hour. Workmen cannot be transferred or laid off in numbers which interfere with production schedules and must be studied on the job as far as humanly possible. The plant doctor is liable to be overwhelmed with minor surgery, and workmen often see their own physician "on the outside" for persistent medical ailments. These doctors have no means of knowing the carefully guarded formulas of the compounds which their patients handle; nevertheless in the ensuing series of cases the general practitioner was able to diagnose liver damage in at least 1 instance in which his observation might have been the means of avoiding a fatality.

With the use all over the country of new and medically unknown compounds, the cooperation of the family physician is essential in recognizing serious symptoms which do not appear on the surface to be related to any of the usual industrial hazards.

The pentachlorinated naphthalenes were studied at a plant where about 2,500 men were engaged, in three shifts, in manufacturing wire cable for the Navy. The process consisted in

the 450 men who were easily shown to be sensitive on exposure to the chemicals, it was necessary to find means of weeding out those to whom it constituted a serious and, in 7 cases, a fatal hazard. In the following cases the histories have been summarized and the chemical findings tabulated for convenience.

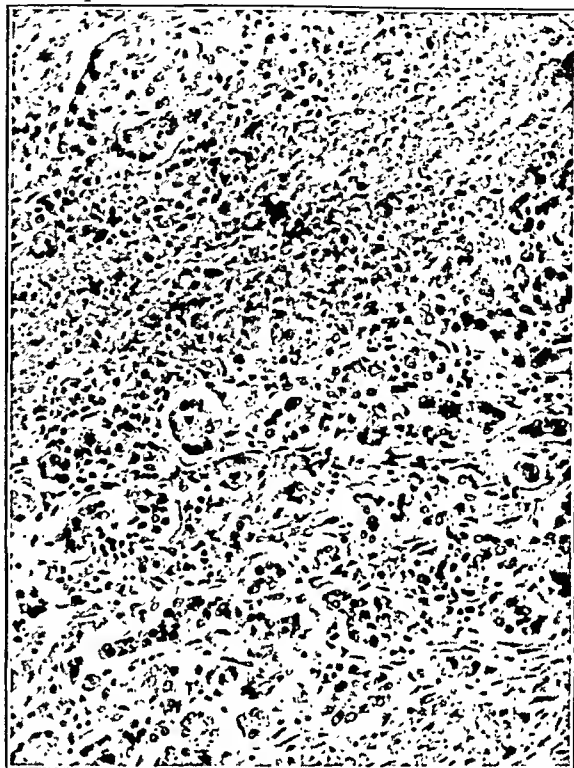


Fig. 2.—Section, $\times 230$, showing that all liver cells have disappeared. Proliferation of bile ducts is the only evidence of regeneration in this area. No nodules of liver cells are included.



Fig. 1.—Section of liver, $\times 110$, showing complete absence of liver cells, bile duct proliferation, hemorrhage and inflammatory reaction.

coating the wire with a toxic substance which rendered it heat resistant and water repellent to a degree unobtainable by any other method. The product was essential to the war effort, and no substitute could be made available under a year. Of

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CASE 1.—C. M., an Italian aged 58, developed drowsiness, indigestion, frequency of urination and a papular rash of the face and hands after three months' exposure. When seen he was deeply jaundiced, dyspneic and unable to walk without support. The respiratory rate was 25 per minute. The blood pressure was 100 systolic, 60 diastolic. Liver dullness was diminished. The urine showed 1 plus albumin and 4 plus bile. The stools were clay colored. The blood cell count was negative. Subsequently the patient went into deep coma with incontinence of urine and feces and died five months after onset.

CASE 2.—H. R., an American aged 43, developed cramps and nausea after seven weeks' exposure. He complained that "even thinking about the compound" made him retch. When seen he had a temperature of 101 F. and severe jaundice. He showed areas of depigmentation on the wrists. Liver dullness was diminished, the urine bile was 4 plus, the stools were clay colored and the blood cell count was low in granulocytes. The patient was hospitalized and was discharged cured.

CASE 3.—C. K., a Negro aged 26, developed dizziness, pain in the back and acute nausea whenever he entered the plant and smelled the chemical after three months' exposure. He showed no jaundice, no liver dullness and no bile in the urine. He had depigmentation and depilation of his arms and legs. The stools were normal. The blood cell count showed slight anemia and low granulocytes. He was hospitalized and discharged cured.

CASE 4.—M. C., an Italian aged 43, developed precordial pain, a papular rash on the exposed surfaces and nausea as soon as he began to work with chemicals. After a year his symptoms were intensified and he became jaundiced, but the condition cleared up when he was transferred to a department where he did not handle the wire. His jaundice recurred when put on his original job, and he was treated at home by the family doctor for two months. He was normal when seen.

CASE 5.—F. C., an American aged 28, developed extreme nervousness, loss of appetite and abdominal pain after a year's exposure. He showed edema below the eyes, a papular rash of the arms and a peculiar bronze pigmentation of the upper part of the face. There was no jaundice, liver dulness or bile in the urine. The blood cell count was normal. The patient had a masklike facies and tremor of the hands which persisted for some months. The basal metabolic rate was normal. He was treated and discharged cured.

CASE 6.—An American aged 31 developed severe upper abdominal pain after handling wire, originating in the H. W. plant at the shipyard where he was employed. The onset occurred three months after exposure. He showed no jaundice, liver dulness or bile in the urine. He had a typical papular rash of the forearm. He was treated and discharged cured.

CASE 7.—A. S., an American aged 50, developed abdominal pain and a papular rash after three months' exposure. He was admitted to the Presbyterian Hospital, where he showed jaundice, clay colored stools and bile and casts in the urine. The blood cell count was negative. He was discharged at his own risk. He died six months later.

The pathologic report by Dr. Sproul in cases 1 and 7 was as follows: No entirely normal liver parenchyma was found, but the sections presented a variegated appearance. In areas there was a complete absence of liver cells, with collapse of the stroma to half its original space. The central portions of the lobules were hemorrhagic; the periphery showed prominent

TRAUMATIC AVULSION OF ENTIRE PENIS (BOTH CORPORA CAVERNOSA AND URETHRA) AN INDUSTRIAL INJURY

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Recent articles¹ have drawn attention to the injury of traumatic avulsion of the skin of the penis and/or scrotum as a result of clothing having been caught in machinery. A search through articles here available has failed to elicit any case in which the entire penis was torn off. The following is the history of such a case:

History.—A. B., a man aged 42, a tractor driver, on May 6, 1938 was driving a tractor on a ranch 45 miles north of San Francisco and was thrown backward from the seat, landing on the universal joint when the tractor bumped into a ditch. The lower part of the patient's trousers was caught in the universal joint and immediately wrapped around the shaft. At the same time his penis was caught in the gears and torn out. The patient walked about a mile to the ranch house, during which time he states that there was considerable bleeding. From the ranch house he was immediately taken by automobile into San Francisco and was first seen when he arrived at St. Luke's Hospital at about 6 p. m., roughly three hours after the injury. The patient was taken to the operating room immediately and the clothing removed. There were no dressings over the seat of injury.

Results of Tests in Seven Cases of Poisoning

Case	Ceph- alin Floccu- lation	Blood Sugar, Mg. per 100 Cc.	Phos- phorus, Mg. per 100 Cc.	Phos- phatase, Bodansky Units per 100 Cc.	Uric Acid, Mg. per 100 Cc.	Choles- terol, Mg. per 100 Cc.	Bili- rubin, Mg. per 100 Cc.	Total Protein, per Cent	Albu- min, per Cent	Glob- ulin, per Cent	Euglob- ulin, per Cent	Carbon Dioxide Content, Volumes per Cent	Chloride (as Sodium Chloride), Mg. per 100 Cc.	Sodium, mEq. per Liter	Non- protein Nitrogen, Mg. per 100 Cc.
1 a	+	102	3.6	9.2	2.2	303	21.2	5.7	2.6	3.1	0.5	50.7	628	131.8	30
b	++++	...	3.2	6.5	...	80	22.5	5.9	2.1	3.8	0.6	...	...	...	...
2 a	0	83	3.7	5.3	3.9	190	7.5	6.4	2.8	2.6	0.4	...	...	...	22
b	...	...	...	6.7	...	242	0.2	...	...	...	...	...	...	...	...
3 a	0	96	4.1	2.9	2.9	170	0.2	7.0	4.9	2.1	0.2	...	...	...	24
5 a	0	102	3.3	2.4	4.9	145	0.2	6.5	4.5	2.1	0.3	65.0	575	137.5	28
b	...	...	...	...	...	185	...	...	...	...	...	...	...	...	...
6 a	0	65	5.1	2.1	2.2	290	0.9	6.8	4.3	2.5	0.9	...	...	...	..
b	...	102	...	...	...	186	0.3	...	...	...	0.2	...	...	...	..
7 a	+	...	3.2	15.6	...	500	11.6	6.6	3.8	2.8	...	...	...	...	..
b	+++	...	2.5	21.3	...	293	...	6.7	...	...	...	...	...	...	..

a signifies value when first seen; b signifies value when discharged.

bile duct proliferation but no liver regeneration in the areas lacking any parenchyma. Elsewhere there was only partial loss of liver cells, and those remaining had proliferated to form nodules without the usual lobular architecture. Necrotic liver cells no longer remained by the time these patients were examined, and inflammatory reaction was very slight. A few eosinophils were found among lymphocytes and polymorphonuclear leukocytes. Bile plugs in distended canaliculi were an uncommon finding. No changes were seen in the kidneys. The spleen showed evidence of mild portal obstruction.

From the foregoing cases selected from a group of 15 showing one or more signs of definite liver damage, it will be seen that the most constant early symptom of the condition was a papular rash of the exposed surfaces in white men and a corresponding depigmentation in the Negroes. The onset was usually within a few months of starting work and cleared up equally rapidly if the patient was removed from contact with the chemical as soon as the gastrointestinal symptoms began. When exposure to the hazard continued, actual changes took place in the liver and we found alterations in the serum cholesterol, serum phosphatase, serum bilirubin and serum proteins. The cephalin flocculation tests gave no decisive results until late in the disease.

It is abundantly clear that no laboratory test can be substituted for a careful history of the patient's symptoms, including the intense revulsion to the smell of the chemical, and a physical examination for signs of jaundice and diminished liver dulness. Such an investigation will determine the course of the disease long before the chemical findings become decisive.

Examination.—There was a circular opening in the skin overlying the pubis about 1 inch in diameter. The skin edges were sharply delimited as if cut with a knife. The penis was missing. The entire pubis was greatly distended with blood and resembled in appearance the female mons. A blood clot was protruding through the opening in the skin. There was no hemorrhage in or injury to the scrotum. The scrotum was not particularly elongated, nor was it unusually small. There was but little swelling or discoloration in the perineum.

Treatment.—The patient was placed in the lithotomy position, the pubis shaved and cleaned, and blood clot irrigated out. Passing the finger through this opening made palpation of the entire perineum easily accomplished, and the bare surface of the two pubic rami immediately were encountered. The scrotum was elevated and a medial, longitudinal incision made in the perineum. When the skin edges were opened a large cavity containing blood clot was entered. In washing out the blood clot, the entire anatomy was visible; the two pubic rami were visible and still had attached to them ragged portions of the corpora; the urethra apparently had been torn out just below the urogenital diaphragm, and a few strands of tissue containing mucous membrane on one surface were noted. By careful probing along the mucous membrane surface of such strands it was possible to insert a curved clamp through the prostatic

From the Surgical Service of Dr. Alanson Weeks, M.D., St. Luke's Hospital.

Drs. Lionel Player and Albert Davis gave advice, suggestions and assistance during the treatment of the patient.
1. Judd, E. S., Jr., and Havens, F. Z.: Traumatic Avulsion of the Skin of Penis and Scrotum, *Am. J. Surg.* 62: 246 (Nov.) 1943.

urethra into the bladder. The clamp was followed by a self-retaining catheter. The perineal wound was packed with petrolatum gauze and the pubic wound was covered with petrolatum gauze. Blood count revealed 4,460,000 red cells, 75 per cent hemoglobin, 15,200 white cells and 82 polymorphonuclear leukocytes.

The patient made an uneventful recovery from this operation. The catheter was changed from time to time as necessary and cleaned of urates and other sediments. During his convalescence the patient was amazingly apathetic regarding the loss of this important structure. When sympathy was expressed, he stated that he had six children and that he had "done his duty" and appeared to be no more disturbed about the matter at any later time. He was not in the slightest introspective.

Commencing on May 23, 1938, preparations were made to reconstruct a pendulous penis. To this end a tube graft was outlined on the left lower abdomen with skin lining. This was accomplished through several stages, and eventually a graft of about 10 inches in length and 1½ inches in diameter was completed with complete skin lining. It was planned to detach the lateral end of this skin graft and reopen the wound and suture it beneath the perineal skin to the opening of the urethra. This procedure certainly appeared feasible and would have saved the patient the embarrassment of having to sit down to urinate. However, during the various operations necessary for preparation of this tube graft the patient became progressively more disinterested and by August 1939, when final procedure was contemplated, he refused to submit to any further "cutting."

The patient still has a perineal urethra, which, strangely enough, does not appear to require dilation. He has perfect urinary control. Across the lower part of the abdomen he is wearing a tube graft which is now a useless adornment and which he refuses to have placed where I wish to place it, nor will he submit to having it removed entirely, thus spoiling a most interesting experiment. The case being of industrial character, naturally there is some interest in its disposition through the state industrial accident commission. The patient was given a continuing award for further treatment, should such be required. The industrial accident commission considered him to have 51 per cent disability, entitling him to two hundred and four weeks' compensation. The expenses to date to the insurance carrier, including paid-up compensation, medical and hospital bills and other incidentals, is about \$8,000.

Fitzhugh Building.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTIONS WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D., Secretary.

ESTROGENIC SUBSTANCES (See New and Non-official Remedies, 1943, p. 401).

The following additional dosage forms have been accepted:

CHEPLIN BIOLOGICAL LABORATORIES, INC., Syracuse, N. Y.
Solution of Estrogenic Substances (in oil) with Benzyl Alcohol 3%: 10 cc. and 30 cc. vials, each being available in potencies containing the equivalent of 2,000 international units per cubic centimeter, 5,000 international units per cubic centimeter, 10,000 international units per cubic centimeter or 20,000 international units of estrone per cubic centimeter in sesame oil.
SHARP & DOHME, INC., Philadelphia

Ampuls Sterile Solution of Estrogenic Substances (in oil): 1 cc. size containing the equivalent of 2,000 international units per cubic centimeter, 5,000 international units per cubic centimeter or 10,000 international units of estrone per cubic centimeter in peanut oil.

Capsules Estrogenic Substances (in oil): 1,000 international units, 2,000 international units or 4,000 international units of estrone in peanut oil.

Council on Foods and Nutrition and Council on Industrial Health

THE FOLLOWING RESOLUTION PREPARED BY THE COOPERATIVE COMMITTEE ON NUTRITION IN INDUSTRY, WHICH CONSISTS OF DRs. RUSSELL M. WILDER, JAMES S. McLESTER AND GEORGE R. COWGILL REPRESENTING THE COUNCIL ON FOODS AND NUTRITION AND DRs. CLARENCE D. SELBY, LEVERETT D. BRISTOL AND ANTHONY J. LANZA REPRESENTING THE COUNCIL ON INDUSTRIAL HEALTH, HAS BEEN ADOPTED BY THE TWO COUNCILS AND PUBLICATION AUTHORIZED.

GEORGE K. ANDERSON, M.D., Secretary.
CARL M. PETERSON, M.D., Secretary.

NUTRITION IN INDUSTRY

The committee applauds the progress made to date in the development of the government program for increasing in-plant feeding wherever on-the-job feeding can be shown to be practical and feasible. It finds little to criticize and much to commend in the program to improve the nutritional standards of food served in such establishments and by educational effort to raise the nutritional standards of meals which are secured by the workers in their homes or carried as lunches to their work. It is particularly pleased to learn of the cooperative activities of the various agencies of the government represented on the Interagency Committee on Food for Workers and, in particular, to learn that the War Manpower Commission and the War Production Board are prepared to make available the personnel and materials necessary for establishing and maintaining restaurants in plants. It will view with approval adoption by the Office of Price Administration of the proposed differential treatment of feeding establishments catering to workers in heavy industries. It concurs in the expression of opinion prepared by the National Research Council's Committee on Nutrition of Industrial Workers Jan. 26, 1944 and approved by the Food and Nutrition Board Jan. 28, 1944 in reply to the questions submitted to the chairman of that committee by the Secretary of the Council on Foods and Nutrition, A. M. A. It approves the standards for preparation and service of food in in-plant feeding as summarized in the statements quoted from the "Manual of Industrial Nutrition," prepared under the Nutrition and Food Conservation Branch of the Food Distribution Administration. The Council further urges that all physicians engaged by industries cooperate as fully as possible with the regional representatives of the Civilian Food Requirements Branch, Office of Distribution, War Food Administration, in the development of the government program for improving the nutrition of workers, that plant physicians make every effort to secure in-plant feeding establishments wherever such establishments are practical and feasible, and that otherwise they assist as far as they are able in supplementing educational information on nutrition and the preparation of nutritious lunches for the workers. It is urged that plant management leave to the plant physician the responsibility for deciding whether distribution of pharmaceutical preparations of vitamins and minerals is or is not to be adopted as a remedy for correcting inadequacies in workers' diets.

It is further resolved that the Office of the Council on Foods and Nutrition be prepared to provide physicians in industry with all pertinent information relating to the evaluation of distributing multivitamin preparations as a means of correcting inadequacies in workers' diets.

In support of the foregoing resolution the Council on Industrial Health appends the following recommendation:

The Council recognizes the important effects of nutritional deficiencies (subclinical as well as clinical) on the health and productivity of the workers.

The Council is of the opinion that medical supervision to the extent of (1) guiding management in furnishing suitable in-plant feeding facilities and dietaries and (2) counseling with the workers in the prevention of nutritional deficiency states is a function of industrial health.

The Council is of the further opinion that the treatment of nutritional deficiency states is a function of general medical practice.

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SATURDAY, MAY 27, 1944

REHABILITATION AND REEMPLOYMENT

Perhaps as many as a million soldiers, sailors and marines will be discharged from our armed forces during 1944. Many of them will be casualties of battle; many more will, no doubt, have been found unequal to the rigorous physical and disciplinary demands of military life. Fortunately a good share of the men in both of these classifications can be reabsorbed into industrial or other employment without serious difficulty. In many cases the restoration of a seriously handicapped man or woman to civil life will call for the best type of cooperation between physician, vocational educator and rehabilitation case worker. Rehabilitation and reemployment are important immediate problems not to be relegated to nebulous planning. Moreover, the need for such service is certain to grow as the intensity of war increases.

The rehabilitation of veterans is a specific responsibility of the Army, Navy and Veterans Administration, so assigned by law. Briefly, intensive treatment in military hospitals determines whether disabilities are recoverable and hence suitable to eventual return to duty. Serious handicaps receive special attention in designated hospitals where social adjustment and training go hand in hand with medical care. These patients when sufficiently recovered are discharged from the Army or Navy. Then the Veterans Administration provides vocational training and employment, provided the disability is service connected, that the person is honorably discharged and that rehabilitation is needed to overcome the handicap.

The expanding vocational rehabilitation program of the Federal Security Agency makes it doubly certain that private physicians will be keenly conscious of reconstruction and placement of the handicapped in employment. Under this program federal aid is provided to enable state boards of vocational education and state agencies for the blind to furnish disabled persons with all services necessary to render them employable or more advantageously employable. These services include medical and surgical care, hospitali-

zation, physical and occupational therapy, prosthetic appliances, vocational counseling and training, maintenance during training, occupational tools and equipment, and placement in employment. Except for certain groups of war-disabled civilians and federal employees injured in line of duty, persons receiving physical restoration services or maintenance grants must be in financial need.

The federal Office of Vocational Rehabilitation is responsible for establishing standards in the various areas of service, for technical assistance to the states and for certification of funds on the approval of state plans for vocational rehabilitation meeting the requirements of the authorizing act of Congress. A national professional advisory committee, composed of representatives of fields of medicine actively concerned with rehabilitation, of hospital administration, public health nursing, medical social work, physical therapy and occupational therapy, has been appointed by the Federal Security Administrator to assist the Office of Vocational Rehabilitation in the technical phases of physical restoration services. Similar advisory committees will be appointed by all state rehabilitation agencies to guide them in establishing and maintaining professional standards for physical restoration. Further information can be obtained from the state boards of vocational education, from state agencies for the blind or from the Office of Vocational Rehabilitation, Federal Security Agency, Washington 25, D. C.

There is growing realization in industry that handicapped persons are more often assets to a plant than otherwise. There is mounting evidence that they are absent less, that they have fewer accidents and that both the quality and the quantity of production compare favorably with those of normal co-workers. It is not what the man has lost but what he has left that establishes his value in a specific job. Industrial physicians long have realized that after medical treatment has minimized a disability the most important factor in successful rehabilitation is selective placement, matching physical ability with specific job requirements.

Rehabilitation should be regarded as susceptible of local treatment, not relegated entirely to federal-state agencies. The Marathon County Medical Society in Wisconsin has recognized that preplacement examinations are essential before a handicapped person is employed. This county society has agreed to examine returning veterans without charge and to recommend to employers that placement occur wherever the veteran can work effectively and safely—safely to himself, to his co-workers and to the public. Placement certificates will be furnished each veteran and prospective employers urged to utilize the services of these men to maximum capacity. In Peoria, Ill., a community plan has been developed which searches out the handicapped, takes a census of job opportunities and brings the candidate and job opportunity together. A high degree of coordination has been developed between local govern-

ment, professional groups, industry, labor, health agencies, service clubs, veterans' organizations and other interested civic groups.

The Council on Industrial Health and the Council on Physical Therapy have set up a joint committee on rehabilitation. This committee believes that rehabilitation is essentially a medical problem, that the American Medical Association should notify the profession of legislative proposals in this field and see to it that physicians are in a position to participate effectively in current plans. There will likely be considerable dependence on the profession, both in general and in special practice, to carry out the medical aspects of the federal-state program now in formulation. Practitioners should therefore be in possession of as many details as possible, regarding both state administrative organization and the special facilities necessary for adequate diagnosis and successful case management.

CANCER AS THE RESULT OF ACCIDENTAL INJURY

Under workmen's compensation acts cases involving cancer fall in two groups, one in which the injury is claimed to have caused the cancer and one in which it is claimed that the injury aggravated cancer existing before the injury.¹

In respect to the first group, the law appears to be that where "a normal healthy individual receives an injury by accident in the course of and arising out of his employment and thereafter his health steadily declines and a cancerous condition in the vicinity thereafter causes the (disability or) death of the employee, the causal connection between the injury and the cancer is established and the (disability or) death is compensable under the workmen's compensation act, on the theory that the cancer was caused by such injury."² To prove that the cancer is an "accidental injury" the following four elements must be present: serious injury or strain, physical connection between the injury or death, proper lapse of time between the injury and the disability or death, and freedom on the part of the employee from cancer at the time of the injury. Rubenstein cites a number of illustrative cases. An employee cut his lip on the edge of an envelope flap, "and cancer developed" for which compensation was granted. In another case the medical testimony is said to have revealed that lymphatic sarcoma developed as the result of a severe strain of the back.

The theory that cancer can be caused by a single accidental injury is not supported by prevailing scientific knowledge of the causation of cancer. Its only support would seem to be the fallacy of "post hoc ergo propter hoc." Unfortunately, legal authorities are will-

ing to accept such crude reasoning as if it solved the cancer problem. In spite of the humanitarian intent of the declaration that a single accidental injury can cause cancer, justice has not been done and the public is receiving a wrong impression in regard to the cause of cancer. Undoubtedly awards such as the ones mentioned were based on medical testimony, but such testimony simply cannot be regarded as conclusive. Decisions that single accidental injuries have caused cancer or can cause cancer should be appealed to tribunals which will give the problems involved adequate competent attention in the light of present knowledge.

ORGANIC CHANGES IN MANIC- DEPRESSIVE PSYCHOSIS

A remarkable though crude observation which may prove to be a fundamental step in understanding the basic disorders in psychic diseases has recently been reported by Baird.¹ He theorized that manic-depressive psychoses may be related to functional disturbances of the adrenal gland which would be reflected by characteristic biochemical changes in the blood. He then administered to adrenalectomized cats whole citrated blood from manic patients obtained during an acute crisis. The results of this experiment were compared with those observed in adrenalectomized cats which received whole citrated blood from normal persons or isotonic solution of three chlorides. The average length of life after adrenalectomy of animals receiving manic blood was 11.5 days in one group of 4 cats and 10.3 days in a second group of 7 cats, as compared with an average survival of 2.3 days in 3 cats which received normal blood, 4.5 days in 2 cats treated with isotonic solution of three chlorides and 6 days in 2 cats which received whole blood from normal persons obtained during a state of emotional excitation. The average duration of life of all 11 experimental cats was nearly three times as long as that of all 7 control cats. The experiments were repeated using rats as experimental animals. Two adrenalectomized rats which received manic blood survived eight times longer than 3 adrenalectomized rats that received normal blood.

Some of the effects observed in animals treated with whole blood from acute manic patients were as amazing as unexpected. In contrast to the adrenalectomized controls, which were characteristically weak, inactive and semiagonal a few days after the removal of the adrenals, 2 of the treated cats showed exceptional strength and activity, being capable of running without fatigue and offering powerful resistance during the injections. Moreover, 1 of these cats was highly excitable, easily enraged, wild and ferocious, requiring to be held for the injections by the combined effort of three men. Likewise adrenalectomized rats that

1. Rubenstein, I. H.: Cancer as Accidental Injury under the Workmen's Compensation Act, *Bull. Am. Soc. for the Control of Cancer* 26:18 (Feb.) 1944.

2. Smith, v. W. P. Lumber Co., 53 Idaho 808, 27 Pac. (2) 965 (1933), cited by Rubenstein.¹

1. Baird, Perry C., Jr.: Biochemical Component of the Manic-Depressive Psychosis, *J. Nerv. & Ment. Dis.* 99:359 (April) 1944.

received manic blood exhibited unusual strength and activity, voracious appetite and remarkable excitability and resistance during the injections.

These preliminary observations are difficult to interpret. Confirmation of the work is needed. Much more must be done before even the general idea which directed the experiments can be accepted. It would be desirable to extend the observations to a more significant number of animals, to repeat the experiments using adrenomedullated animals and to study the electrolyte and carbohydrate metabolism in the adrenalectomized animals treated with blood from manic patients. The only conclusion that might be drawn from these preliminary studies is that there is a chemical difference, probably dependent on the adrenal function, between the blood of a healthy person and that of a manic patient. The author's main interest in publishing a report of his work at this stage is to stimulate similar investigation in this condition, especially since the material which can be used is so scarce and difficult to secure. Further, this study should lead to investigation with modern methods of the primary and secondary endocrine changes in manic-depressive and related psychoses.

Current Comment

CENTENNIAL CELEBRATION OF AN EARLY MEDICAL SOCIETY

Recently the Lancaster (Pa.) City and County Medical Society celebrated the one hundredth anniversary of its founding with a combined medical and public meeting at which were present many representatives of the Pennsylvania state and other medical organizations. As early as 1823 some of the physicians in that county conceived the idea of developing a medical society, which was not, however, finally formed until 1844. The society has had a notable career. One of its members, Dr. John L. Atlee, was President of the American Medical Association in 1882. The Lancaster County Medical Society was one of the first to encourage the entrance of women into the practice of medicine. Among the notable physicians who came from Lancaster County were members of the Musser family, John B. Deaver, the Muhlenbergs and the Appels. Dr. Jonathan M. Foltz, born in Lancaster in 1810, was personal physician to President Buchanan and became Surgeon General under President Grant. What is said to have been the first bath tub installed in the United States was installed in the home of Jacob Demuth in Lancaster in 1839. The second bath tub is said to have been widely announced as the one installed in Cincinnati in 1842. At that time several medical societies adopted resolutions warning of the danger of too frequent use of the bath tub because of the possibility of pneumonia and other congestive diseases. It is reported that at that time Philadelphia prohibited the taking of a bath more than once a week without a physician's prescription. Boston imposed a fine for the same offense. There was much talk of

the scandal of sitting naked in a bath tub, and a maiden lady of Lancaster who had three pets—a parrot, a cat and a dog—was accustomed to blindfolding these pets when she took a bath. The hundredth anniversary of the Lancaster City and County Medical Society was greeted with a letter from the President of the United States, who noted the great contributions of the medical profession of Pennsylvania to the life of the nation and who emphasized the great accomplishments of the medical departments of our armed forces in this war. In honor of the centennial celebration a special issue of the Bulletin was made available. It includes facsimiles of the early notices associated with the formation of the society and two excellent historical recapitulations of the history of medicine in Lancaster.

BIRTH RATES IN WARRING COUNTRIES

Germany and the Axis nations of Europe are failing to maintain a growing population, while the United States, Great Britain and other Allied countries are recording large wartime gains in natural increase, according to a recent release from the Metropolitan Life Insurance Company.¹ The annual rate of population increase dropped in Germany from 8.1 per thousand of population in 1939, which was the highest rate obtained under Hitler's régime, to 2.9 in 1942, which is the lowest rate of natural increase in Germany since the first world war. In the United States, on the contrary, the rate of natural increase in 1939 was exceeded in Germany by 21 per cent, whereas in 1942 the reverse was true and the rate of increase in this country was almost four times that in Germany. Confirmation of the main features of this picture are given in the London Letter appearing elsewhere in this issue (p. 299). The latter report, however, stresses the even worse population picture of the conquered countries of Europe; most of these are probably failing to show a natural growth by an even larger margin than is Germany itself. Indeed, in many of them peace will likely find a materially smaller population than existed before the war. Thus war shakes the biologic foundations of human life and has an even more profound influence on the future than can be measured by the number of casualties.

INDUSTRIAL ACCIDENTS TO PRISONERS OF WAR

Under international law, prisoners of war are permitted employment in industrial plants. In practice, large numbers of prisoners undertake such employment not only because an amelioration of their living conditions and increased income usually results but also because the continued absence of occupation tends to become a form of punishment. Industrial injuries consequently involve prisoners of war like others in similar occupations. This problem has been considered in article 27 of the Geneva Convention of 1929 relative to the treatment of prisoners of war. Unfortunately the text of this agreement on reciprocity is not clear and permits two different interpretations. According to the more liberal view the obligation of the country to prisoners

1. Metropolitan Life Insurance Company, April 28, 1944.

of war who become victims of industrial accidents does not cease with the liberation and repatriation of the prisoner but continues indefinitely on a reciprocal basis. According to the second interpretation the obligation to the injured prisoner lasts only during the entire period of captivity. It ceases at the time of liberation. Those countries which have adopted the latter position have doubtless felt that it was more practical under the terms of reciprocity for each state to resume under its own regulations the indemnities for industrial accidents as they do with respect to prisoners suffering from war wounds. The first view is that held by the committee of the International Red Cross.¹ In the presence of these two opinions, however, and the obscurity in the text of the convention, it is felt that the question should be regulated in a definite and uniform manner by agreement between the interested countries.

SYMPTOMATOLOGY OF PSYCHONEUROSIS

The protean and atypical manifestations often elicited by psychoneurotic states may mislead the clinician. The complexity of the somatic manifestations in psychoneurosis has been recently emphasized by Douglas-Wilson,¹ who studied 231 patients in a military hospital. Nearly all exhibited localized symptoms referred to various organic systems. Cardiovascular disorders such as dyspnea, palpitation and precordial oppression were frequently the most distressing complaints. In other instances the primary symptomatology was referred to the chest, the central nervous system or the digestive and urinary tracts or was constituted by general manifestations, including weakness, nervousness, headache and dizziness. The typical case, however, presented multiple somatic complaints and a history more or less characteristic of mental disorder. The classification of psychoneurotic states into organic categories, a common example of which is the effort syndrome, should be avoided. Inaccurately it points to a single aspect of the condition and tends to obscure the primary psychic abnormality as well as the numerous associated somatic disturbances. A careful analysis of the histories of these patients disclosed in most a predisposition to mental disorders in addition to a number of factors responsible for the localization of symptoms. Previous injuries and mild illnesses or familial history of disease in the involved systems were frequently recognized as important factors in the localization of the somatic manifestations. Psychoneurotic patients preoccupied with the after-effects of trauma to the head, with fear of tuberculosis, gastric lesions or heart disease, are apt to present subjective manifestations referred to the respective systems. The type of personality and the degree of mental development were equally important in the determination of symptoms. Thus, immature or mentally deficient persons often had urinary frequency and nocturnal enuresis on a psychoneurotic basis. A complete analysis of the history and an evaluation of the mental efficiency provide important clues to the diagnosis.

BIOLOGIC FACTORS OF SAFETY IN FERTILITY

In the attack on sterility, consideration is given not only to the ovum but also to the part played by the spermatozoa. Brown¹ of Washington University School of Medicine, has made some investigations of male seminal fluid with a view to determining whether or not modification in the character of this fluid or increase in its amount might serve to protect the spermatozoa over a longer period of time and make more likely contact of the sperm cell with the ovum. A variety of experiments were performed, mixing two or more fresh ejaculates and also mixing a fresh ejaculate with old ejaculates. In the course of the studies it was found that "one of nature's most extravagant enterprises is the production of spermatozoa." Man normally produces about 120 million spermatozoa for each cubic-centimeter of fluid, or approximately 450 million in the average ejaculate. In one experiment a donor produced a total of 30 to 50 million spermatozoa every twenty-four hours daily over a considerable period. By calculation the male human delivers 1 to 2 billion spermatozoa for each ovum discharged into the female tubes. When it is realized that only 1 spermatozoon can impregnate the ovum, the tremendous factor of safety involved becomes apparent. These studies lead to the conclusion that such influence as the glandular secretions of the male have on the spermatozoa cannot be further increased by the addition of fluid to the normal ejaculate.

CADMIUM POISONING

Cadmium and its salts are used in many industries. Inhalation of the fumes of the metal or of its salts may result in serious, even fatal, poisoning, with widespread inflammatory changes in the lungs, gastrointestinal tract and kidneys. The lungs suffer most in inhalation of cadmium fumes. In mild cases recovery is prompt, but if pneumonia develops recovery may be delayed. Death has occurred within ten days. Finely divided cadmium is inflammable, and in the presence of oxygen dangerous fumes of cadmium oxide may develop. Ross¹ describes an instance of poisoning from the ignition of cadmium dust on the floor of a room while a cadmium recovery chamber was being cleaned. The ignition was caused when a worker smoking contrary to rules dropped cigaret ashes on the floor. Yellowish brown fumes filled the shop rapidly and poisoned all of the 23 workmen present. Nausea, epigastric pain, precordial constriction, dyspnea and prostration resulted to a greater or less degree in most of the men. Fourteen suffered from "fume fever." Of the more seriously affected, one was absent from work four weeks and another seven. The fireman who developed pneumonia was disabled for two months. Ross points out that where cadmium fumes may arise the worker "must be protected adequately by either an efficient exhaust system or a suitable respirator" and that in case of fire where cadmium is used the firemen will need respirators.

1. Editorial, *Rev. internat. de la Croix-Rouge*, November 1943, p. 849.
1. Douglas-Wilson, Ian: *Somatic Manifestations of Psychoneurosis*, *Brit. M. J.* 1: 413 (March 25) 1944.

1. Brown, R. L.: *Effect of Seminal Constituents on Spermatozoa*, *J. Urol.* 51: 443 (April) 1944.
1. Ross, P.: *Cadmium Poisoning*, *Brit. M. J.* 1: 252 (Feb. 19) 1944.

MEDICINE AND THE WAR

ARMY

THE RECONDITIONING PROGRAM The Army's Answer to the Manpower Shortage

Captain Franklin P. Boeckman, M. A. C.

Office of the Surgeon General, U. S. Army,
Reconditioning Division

WASHINGTON, D. C.

In peacetime medical practice, after-care and restoration of the patient to full health were of seemingly secondary importance as compared to the more urgent and fascinating treatment of acute illness. But today, with every lost man-hour directly contributable to a prolongation of the war, it is no longer considered sufficient to send a soldier recovering from a serious illness or operation home on a convalescent furlough with the hope that he will enjoy a comfortable bed to sleep in, plenty of nourishing food and an abundance of fresh air and sunshine. For such trust is seldom vindicated. The inducements to rapid convalescence offered by a convalescent furlough are more apparent than real. Too often soldiers returning from convalescent furlough are found to be in worse condition than when they departed. The "pleasant trip home" turns out to be a grueling ordeal in which the weakened patient is forced to stand for long hours in overcrowded trains or busses, where the air is pregnant with tobacco smoke and disease germs. Night brings little rest, and meals consist of nothing more than a sandwich, for even when sleeping accommodations and eating facilities are readily available the soldier is understandably reluctant to spend his limited earnings for that which he believes he can "get along without." Once he arrives at home, the convalescent soldier is usually caught up in a whirl of strength depleting social activities provided by his well intentioned friends and relatives who are anxious to "show the boy a good time."

It can be readily discerned that the convalescent furlough is wholly inadequate as a means of promoting convalescence. Therefore other measures for accelerating patient recovery, and thereby conserving fighting strength, had to be adopted. For all our strength is needed to win this war—strength greater than the enemy's. Not the potential strength of men lying in hospital beds, but the actual strength of men ready to battle with tank or bayonet, uninhibited by weakness or disease.

The mission of the Medical Department, "to conserve fighting strength," cannot be completely accomplished merely by prescribing treatment which will promote healing. It is equally essential that there be provided for the soldier who has recovered from a serious illness or surgical procedure convalescent care in the form of a program of reconditioning activities specially designed to suit his particular needs, and that his participation therein be guided in such a manner as to insure his regaining, in a minimum of time, the strength, endurance, agility and coordination which are prerequisites to the proper performance of military duty. Such a program is now in operation in all ASF hospitals. It is known as the Reconditioning Program.

In addition to the primary function of providing the means by which convalescent soldiers may be rapidly

and effectively conditioned for return to full military duty, the Reconditioning Program offers itself as a laboratory where the allegation or suspicion that a man is disqualified for further military service may be either verified or disproved, where the capabilities and limitations of men unfit for full duty and yet ineligible for medical discharge may be studied with a view to recommending appropriate reassignment, and where preoperative patients found to be in a state of nutritive imbalance may be built up, thereby improving operative results and shortening the postoperative convalescence period.

The Reconditioning Program was authorized by Memorandum No. W40-6-43, WD, 11 February 1943, subject "Convalescence and Reconditioning in Hospitals." General policies for its operation were established by SGO Circular Letter No. 168, 21 September 1943. But the additional personnel required for the operation thereof were not provided by either directive. Consequently hospital staffs, forced to carry on the task in addition to their already overburdening duties, were unable to do full justice to the program. This situation existed until March 11, 1944, when section II of ASF Circular No. 73 provided specific allotments of personnel sufficient for the proper operation of the Reconditioning Program.

The hereinbefore mentioned circular provided in brief that the reconditioning sections of all ASF hospitals of 500 normal beds or larger would be authorized additional personnel as follows:

1. One major or captain, M. A. C. or M. C., as chief of the reconditioning section.
2. One major or captain, morale services trained, as educational officer, with two enlisted or civilian assistants for each thousand normal beds or major fraction thereof.
3. One technical sergeant, staff sergeant or sergeant qualified as a physical education instructor, for each 500 normal beds or major fraction thereof.
4. One captain or first lieutenant, M. A. C., as commanding officer of the advanced reconditioning section and for each hundred class 1 and 2 trainees in the advanced reconditioning section; one first or second lieutenant, M. A. C.; one technical sergeant qualified in physical education, and two sergeants qualified as platoon leaders.

In addition to these personnel, section IV, ASF Circular No. 30, 1944, authorizes that, "to the maximum extent practicable, officers of company grade who have been wounded in action, are classified limited service, are superior in leadership and are physically and mentally suited to such duties will be assigned to duty with reconditioning sections of general hospitals."

Civilian occupational therapists are now being assigned to general hospitals, and it is intended that the larger station hospitals will be similarly supplied when sufficient trained therapists are available.

Only personnel who are highly enthusiastic about the value of the Reconditioning Program should be assigned to it for duty. These personnel must be capable of arousing or implanting in others an intense devotion to duty and an appreciation of the benefits to be derived from wholehearted participation in the Reconditioning Program. When men are motivated to extend them-

selves mentally and physically in an effort to perform all activities in the prescribed manner, best results in reconditioning are obtained. But only strong and enthusiastic leadership will motivate men to this extent.

THE BED PATIENT

The bed patient is assigned to the Reconditioning Program just as soon as it is determined by the ward officer that he has improved sufficiently to permit his engaging in light exercises for short periods each day. He is referred to as a "class 4 patient."

The physical regimen for the class 4 patient usually consists in from fifteen to sixty minutes daily of mild calisthenics, deep breathing, exercises, self-resistive exercises, rolling, stretching, light arm and foot movements consistent with the limitation imposed by the disease or injury and, when indicated, heat, massage and the various other treatments used by physical therapists to promote recuperation. Exercise sessions are divided into periods of fifteen minutes each and are spaced throughout the day.

As the state of the patient when he enters the convalescent period depends on several variables, such as the previous condition of the patient, the duration of the illness, the degree of fever and the physiologic and biochemical disturbances of the body incident to the disease, it is apparent that the program of reconditioning must be prescribed for the patient rather than for the disease.

Prescribed by medical officers and executed under the supervision of physical training instructors specially trained to direct them, exercises are conducted in such a manner as to approach the tolerance of the individual as closely as possible but never to exceed it.

The occupational therapy prescribed for the bed patient usually is limited to light purposeful tasks or creative art or handicraft activity which can be accomplished conveniently while in bed and may include such practical activity as folding dressings, making medicine swabs and fabricating camouflage nets and helmet nets. The therapeutic aspect of properly guided leisure time occupation is important to the treatment program of the patient as well as to his morale and that of the duty personnel.

The educational content of the program for class 4 patients includes news analyses, radio programs, reading of books and periodicals, lectures and discussions on topics of general interest, and short periods of instruction on military subjects. It is designed to divert the mind by relieving it of the anxieties and strains of war and the boredom and weariness resulting from enforced physical inactivity and, while diverting the mind, to stimulate active and purposeful interests. Such interests are directed toward inculcating in the patient a desire to return to duty in good condition as rapidly as possible.

THE AMBULATORY PATIENT

When the patient becomes ambulatory he is known as a "class 3 patient." He is now able to engage in more arduous activities. He is called on to make his own bed, police his bed area and assist Medical Department personnel in performing various jobs, both in his own ward and in other parts of the hospital.

To the occupational therapy section the ambulatory patient is referred for the purpose of participation in occupational activities which have therapeutic or industrial value. The physical injury cases are assigned to such occupations as woodworking or printing, thereby strengthening weakened or injured muscles or increas-

ing joint motion. Patients requiring psychologic (psychiatric) treatment are activated through the use of constructive occupations that will develop a sustained interest and motivate the energies. The use of occupational therapy in prolonged convalescence diminishes self pity and discouragement and is the first step in the program of retraining and promoting general fitness. The activities used are many and varied but must hold manly interest. The learning of new skills and techniques, such as the use of tools, how to print, bookbinding, plastic work, radio repairing, the making of camouflage nets, identification tag cords and lanyards, and fly tying, hold an interest for the men which may well carry over into the more industrial pursuits. Individual patients may be assigned to industrial therapy according to disability and specific abilities and interests. Designated hospital departments may be utilized, the particular occupations being selected and work activities arranged by the occupational therapist in concurrence with the medical officer. Such departments might include the offices, the carpenter shop, plumbing and electrical shops, orthopedic shop, the cafeterias, the photographic department and the building and grounds department for outdoor activity and gardening, the library, the laboratory and the storeroom. The facilities of these departments would necessarily be made available to patients on an assignment basis, the work to be supervised by department personnel.

Class 3 patients are required to participate in from two to three hours of physical training daily. These exercises are carried out either in the ward, in a gymnasium or, weather permitting, outdoors in the area immediately adjacent to the ward. In some hospitals, in an effort to "take the gymnasium to the ward," carts have been constructed which are equipped with Indian clubs, dumbbells, arm and leg exercisers, medicine balls and hand grips. The application of the overload principle requires that the exercises prescribed for the class 3 patient be increased daily in intensity and scope. In addition to calisthenics and gymnastics, these patients are able to engage in mild games such as croquet, throwing horseshoes and modified softball.

The educational program for the ambulatory patient calls for more time to be devoted to military subjects and less to the so-called diversional subjects. He is able to attend training bulletins, film bulletins, lectures, conferences and demonstrations devoted to military subjects which require no field work. Morale Services officers present highly enlightening and interesting orientation courses. In addition, patients are encouraged to study United States armed forces institute courses during their off duty hours with a view to continuing such courses on discharge from hospital. Practical teachability is the chief concern.

THE ADVANCED RECONDITIONING SECTION

Patients who no longer require hospitalization are either (1) returned to duty, (2) discharged from the service or (3) admitted to the advanced reconditioning section for further physical training. Patients whose stay in the hospital has been so brief as not to permit of any appreciable loss in condition are returned directly to duty, while all others who may be expected to return to duty are assigned to the advanced reconditioning section.

Patients assigned to the advanced reconditioning section are known as "trainees." They are divided into two groups, namely (1) the class 2 group, who are in early stages of training, and (2) the class 1 group, trainees who have almost completely recuperated.

As Florence Nightingale is reported to have said, "The important thing about a convalescent hospital is that it not be like a hospital at all." In the advanced reconditioning section every effort is made to create a "line company" atmosphere. To this end the trainees are housed in barracks detached from the hospital, wear regular duty uniforms, sleep on cots instead of hospital beds, are issued class A passes and are, in general, granted all privileges normally enjoyed by soldiers on a full duty status. The trainees are assigned to platoons commanded by a sergeant who is a member of the advanced reconditioning section staff. Squad leaders are selected from among the trainees. This section is operated under full military discipline.

To achieve desired results, all activities in the advanced reconditioning section must be scheduled as in the average training company. Beginning with reveille and ending with retreat, every man is fully occupied during the entire day. The greater part of the training day is devoted to physical reconditioning activities with but two hours a day being allotted to academic military instruction. In advanced reconditioning sections of general hospitals these academic subjects actually constitute a refresher course in basic military training, with emphasis on such subjects as map reading, scouting and patrolling, weapons and their uses, sanitation and hygiene, defense against air, mechanized and chemical attacks and first aid. At station hospitals, however, the program content is selected so as best to suit the needs of the major units stationed at the post. All military training is carried on outside of the hospital proper.

The orientation courses which were started when the trainee was a bed patient are continued in the advanced reconditioning section. These are conducted by officers who are Morale Services trained.

Those trainees who, as bed or ambulatory patients, subscribed to U. S. AFI courses are encouraged to continue their study, while efforts are made to sign up those who were not previously interested.

For those trainees who have been recently admitted to the advanced reconditioning section (class 2) the physical activities are comparatively mild, but as they progress the regimen increases in both character and duration until during their last week in the program as class 1 trainees they participate in six hours daily of grueling exercises, some of which are general in nature while others are designed to strengthen a particular weakness.

The physical training program provided for trainees in the advanced reconditioning section includes calisthenics, games, gymnastics, swimming and water resistive exercises (where facilities are available), marches up to 15 miles, combative exercises, drill and physical fitness tests.

Many incidental medical matters are cared for during the trainee's stay in the advanced reconditioning section. Each man has his eyes examined, and spectacles are prescribed when required. A dental survey discloses any dental defects, and all indicated treatment is administered before the trainee returns to duty. Every effort is made to send the soldier back to his organization fit in every respect to perform full military duty.

Recreation and diversional activities such as movies, USO shows and dances are provided. Athletics, games and various other forms of group and individual recreation are enjoyed by all trainees as a result of the efforts of the American Red Cross.

At some posts, commanders of the major tactical units stationed there have, in an effort to conserve and more properly utilize manpower, attached classification officers to the hospital for the purpose of reclassifying and/or reassigning patients unfit for the duties to which they were formerly assigned by reason of either (1) maladjustment or (2) a physical disability which, although not sufficiently serious to warrant discharge from the service, prevents the performance of full military duty.

These classification officers are able, with the assistance of the reconditioning officer and the commanding officer of the advanced reconditioning section, to study such trainees under working conditions with a view to recommending reassignment to duties compatible with their limitations.

CONCLUSION

No one knows what the imponderable future holds in store for the Reconditioning Program. But if its auspicious inception can be construed as a manifestation of its ultimate destiny, then the Medical Department of the United States Army has been afforded, through the medium of the Reconditioning Program, an immediate opportunity to achieve even greater success in its relentless efforts to conserve and utilize more efficiently the manpower of the Army.

EIGHTEENTH CLASS TO GRADUATE IN TROPICAL AND MILITARY MEDICINE

Graduation exercises for the eighteenth class in tropical and military medicine were held recently in the Sternberg auditorium of the Army Medical School. Col. George R. Callender, director of the Army Medical School, presided. The diplomas were presented by Col. Richard P. Strong, director of tropical medicine at the Army Medical School, and the class was addressed by Lieut. Col. Hardy A. Kemp, recently returned from extended service in tropical areas.

The graduating class consisted of sixty-five officers of the Medical Department of the U. S. Army, three of the Medical Branch of the Royal Canadian Air Force, one of the United States Public Health Service, two from the Veterans Administration and seven faculty members of medical colleges of the United States and Canada. With the graduation of this class, a total of 1,542 persons have completed the course.

EIGHT BRAZILIAN PHYSICIANS COMPLETE COURSE AT CARLISLE BARRACKS

Eight officers of the Brazilian army medical department were among those who graduated recently from the Medical Field Service School, Carlisle Barracks, Pennsylvania, after six weeks of training for duty with troops. Through an interpreter, Lieut. Richard O. Weber, U. S. Army, of Dayton, Ohio, the eight foreign officers were able to follow all of the class sessions and learn a great deal about the operation of the U. S. Medical Department. The graduates included Major Nelson S. de Meirelles, Capt. Ary Nunes, Capt. Virgilio A. Bastos, Capt. Nelson Rocha, Capt. Adolpho R. Ratisbona, Lieut. Mario E. Alvaro, Lieut. Raphael T. M. Barros and Lieut. Luis de A. Guimaraes. All the officers are in the medical corps with the exception of Major de Meirelles, who is in the dental corps.

ARMY TO RETURN BREAKERS HOTEL TO OWNERS

The U. S. Army will return the Breakers Hotel, Palm Beach, Fla., to its owners on December 11. The hotel has been operated under temporary lease as an army hospital since March 1, 1943. Evacuation of patients will be completed by September 1, the War Department believes, and it is planned to distribute these patients to army hospitals in the vicinity of their homes.

NAVY

NAVY INAUGURATES COAST TO COAST AIRPLANE AMBULANCE SERVICE FOR WOUNDED AND SICK

The Navy inaugurated a new service recently designed to speed the recovery of its wounded and sick, at which time a group of patients were transported from coast to coast by airplane ambulance. The 14 sailors and Marines, all suffering from rheumatic fever, were placed aboard a naval air transport service plane at Washington National Airport en route to the U. S. Naval Hospital at Corona, Calif., where there is specialization of treatment for this disease. Overseas, airplane evacuation of the disabled from forward to rear areas has been conducted on a systematic basis since the first Solomons operations in 1942. In the United States, air ambulance transport for shorter distances has been practiced for many months. All of the 14 patients who figured in the pioneer flight were patients at the U. S. Naval Hospital, Bethesda, Md. Comdr. Alvin F. Coburn, Medical Corps, U. S. Naval Reserve, was in charge of the patients during the flight.

SEEK COMPLETE SET OF COMMISSIONS ISSUED TO NAVAL MEDICAL OFFICERS

The National Naval Medical Center, Bethesda, Md., is endeavoring to collect for its archives a complete set of commissions issued to naval medical officers and signed by past Presidents of the United States. The center has already collected some of this material and it is hoped to be able to build this up to a complete file. The Surgeon General of the Navy would greatly appreciate it if state libraries or individuals who may have in their possession such old commissions turn them over to the center for this purpose.

NAVY AWARDS AND COMMENDATIONS

Lieutenant Commander William F. Queen

A Letter of Commendation and Ribbon has been presented to Lieut. Comdr. William F. Queen, formerly of Louisa, Ky., "for outstanding performance of duty during fierce combat with enemy Japanese forces near Henderson Field, Guadalcanal, Solomon Islands, on the night of Sept. 13-14, 1942. Although his unit was not engaged at the time, Lieutenant Commander Queen, on being informed that wounded men were lying unattended in the vicinity of 'Raider's Ridge,' voluntarily entered the extremely dangerous area and, with utter disregard for his own safety under intense and persistent enemy machine gun and rifle fire, personally administered to the many wounded throughout the night and supervised their evacuation. His splendid initiative and unselfish devotion to duty, maintained in the face of grave peril, were in keeping with the highest traditions of the United States Naval Service." Dr. Queen graduated from Harvard Medical School in 1933 and entered the service Aug. 18, 1938.

Captain French R. Moore

Capt. French R. Moore, now on duty in the Bureau of Medicine and Surgery, has been awarded the Legion of Merit "for exceptionally meritorious conduct in the performance of outstanding service to the government of the United States prior to and during action against enemy Japanese forces on Tarawa, Gilbert Islands, Nov. 20 to Nov. 28, 1943. He effectively coordinated the efforts of medical units with the infantry teams and by his superb professional skill and knowledge contributed to the combat efficiency of the division. The fine record of performance of medical units on Tarawa was in a large part due to his outstanding leadership and courage in the face of the enemy. On Nov. 20, 1943, under heavy enemy machine gun, rifle and cannon fire, he participated in the rescuing of a number of wounded from under the pier and from damaged and stranded landing boats. His valorous action in rescuing these wounded, rendering first aid treatment and subsequently transporting them to a troop ship, while under enemy fire, was responsible for

the saving of their lives. His thorough and complete spirit of cooperation, coupled with his painstaking forethought in organization and indefatigable and tireless devotion to duty, were of invaluable assistance to the division commander and in keeping with the highest traditions of the United States Naval Service." Dr. Moore graduated from the University of Oregon School of Medicine, Portland, in 1926 and entered the service in that year.

Commander Gordon Murphy Bruce

Comdr. Gordon Murphy Bruce, formerly of Englewood, N. J., was recently awarded the Silver Star Medal for service as set forth in the following citation: "For conspicuous gallantry and intrepidity as Commanding Officer of the Medical Battalion during the landing activities at Empress Augusta Bay, Bougainville Island, on Nov. 1, 1943. Having established his command post and set his organization in operation, Commander (then Lieutenant Commander) Bruce, on being informed that the First Battalion at Cape Torokina was suffering heavy casualties and that its medical facilities were overtaxed, unhesitatingly made his hazardous way along 5,000 yards of beach exposed to intense enemy machine gun and rifle fire. . . . Entering the battalion aid station as it was being persistently machine gunned from Torokina Island, Commander Bruce assumed his vital duties and rendered invaluable services to the medical personnel who were caring for the wounded. His inspiring leadership and valiant devotion to duty under extremely difficult conditions were in keeping with the highest traditions of the United States Naval Service." Dr. Bruce graduated from Dalhousie University Faculty of Medicine, Halifax, Nova Scotia, in 1925 and entered the service in July 1942.

Lieutenant Commander Henry P. Hopkins

The Navy Department recently announced the award of the Bronze Star Medal to Lieut. Comdr. Henry P. Hopkins, formerly of Chatham, Mass., for service as set forth in the following citation: "For meritorious service while in action against the enemy as regimental surgeon attached to a Marine regiment operating in the Solomon Islands area from Sept. 21, 1942 to July 29, 1943. During this period Lieutenant Commander Hopkins participated in three major engagements in the Matanikau River area on Guadalcanal Island, and despite the hazardous and trying battle conditions he manifested zeal, efficiency, courage and outstanding ability in the execution of his duties. During the rehabilitation stage he was in charge of health sanitation of his regiment. Owing to his foresight and diligent devotion to duty, he coped with many and varied conditions existent in the tropics and reduced to a minimum the hazards of infection and disease. His conduct throughout was in keeping with the highest traditions of the United States Naval Service." Dr. Hopkins graduated from McGill University Faculty of Medicine, Montreal, in 1932 and entered the service Sept. 9, 1941.

NINE PHARMACIST'S MATES RECEIVE CITATIONS

The Navy Department recently announced the following awards, each accompanied by a citation:

- Berry, Marvin Leon, Pharmacist's Mate Second Class, U. S. Navy, formerly of Grand Saline, Texas.—Silver Star Medal.
- Bowen, Stanley W., Pharmacist's Mate Third Class, U. S. Naval Reserve, formerly of Beverly Hills, Calif.—Commendation.
- Campbell, Frank Marve, Chief Pharmacist's Mate, U. S. Naval Reserve, formerly of Long Beach, N. Y.—Commendation.
- Casey, James M., Pharmacist's Mate First Class, U. S. Navy, formerly of New Caney, Texas.—Bronze Star Medal.
- Gordon, Finley Arnold, Pharmacist's Mate Third Class, formerly of Philadelphia.—Navy Cross (posthumously).
- Harbison, Charles W., Pharmacist's Mate First Class, U. S. Naval Reserve, formerly of Buffalo, Okla.—Commendation.
- Lee, James Luther Jr., Pharmacist's Mate Third Class, U. S. Naval Reserve, formerly of Round Rock, Texas.—Navy Cross (posthumously).
- Storms, Earl la Von, Pharmacist's Mate Second Class, U. S. Navy, formerly of Gardena, Calif.—Navy Cross.
- Walthall, Jacques A., Pharmacist's Mate Second Class, U. S. Naval Reserve, formerly of Birmingham, Ala.—Silver Star Medal.

MISCELLANEOUS

EVALUATION OF STUDIES ON GELATIN PREPARATIONS FOR INTRAVENOUS USE

Special Report from the National Research Council

The subcommittee on blood substitutes of the Division of Medical Sciences of the National Research Council has agreed on the publication of a statement on its evaluation of studies on gelatin preparations for intravenous use. It does this to make available its conclusions regarding the proper use and the limitations of gelatin, and at the same time to make it clear that the preparation and use of gelatin in no way decrease the need for the procurement of blood by the American Red Cross and the preparation from it of blood substitutes for the armed forces. These statements are limited to gelatin solutions specifically prepared for intravenous use. Such solutions should be prepared only in specially constructed plants under the most rigid physicochemical and biologic control.

STATEMENT OF THE COMMITTEE

On the basis of the extensive earlier literature and the recently accumulated evidence, certain statements can be made concerning solutions prepared for intravenous use and the chemical, physiologic and clinical properties of such solutions compared with those of plasma.

I. *Chemical*.—1. Plasma is constituted of molecules whose size is known and related to plasma function. The plasma proteins may be grouped into a few classes, in each of which the molecules are of uniform size and shape. Gelatin and degraded gelatin solutions submitted for study as transfusion fluids show almost continuous variation in size over a very wide range.

2. Plasma proteins have diameters close to 36 angstrom units. Most of the particles of gelatin and degraded gelatin have diameters of about half this value, 18 angstrom units.

3. The largest part of the plasma proteins do not deviate greatly from the symmetrical shape, though fibrinogen, present to a small extent, has long rodlike molecules. Gelatin appears to be made up of linear polypeptide chains loosely coiled to give very long molecules.

4. Degradation of gelatin decreases the number of very long particles which are responsible for the gelatin, much of the viscosity, and probably other desirable effects. Degradation increases the number of very small particles which are responsible for most of the osmotic pressure, though not for the colloid osmotic pressure since they diffuse rapidly through membranes.

5. A standard technic of degradation of gelatin yields solutions of about the same average molecular weight and the same size distribution. The degree of degradation is best measured by the number of potential peptide linkages which are broken. This number can be determined from the osmotic pressure or more easily from the viscosity, since the intrinsic viscosity of these solutions is proportional to the number average molecular weight.

6. Plasma proteins do not readily diffuse through membranes employed in measuring colloid osmotic pressure. A large part of the degraded gelatin solutions submitted for study as transfusion fluids is of such small size as to diffuse readily through such membranes.

(Note: The solution with optimal value in the treatment of hemorrhage and shock examined up to the present time is one of 6 per cent concentration, prepared in saline solution and with the general physicochemical characteristics of what is known as the Knox P-20 type.)

II. *Physiologic and Clinical*.—1. It must be recognized that, when available, whole blood, plasma or human serum albumin are the solutions of choice to be employed in the treatment of hemorrhage or shock.

2. It has been demonstrated that, when the precautions recommended to the gelatin industry are taken, pyrogen-free solutions of gelatin can be prepared.

3. Such gelatin solutions have been given to man without late toxic reactions being observed.

4. A small percentage of individuals have been found to have immediate reactions. Local thromboses are common when certain preservatives are employed.

5. Injection of the gelatin solutions has been made without evidence of sensitization.

6. Many repeated injections in animals have been given without evidence, histologic or clinical, of toxicity or irreversible accumulation.

7. The solutions of gelatin studied have a definite effect in augmenting cardiac output and circulating blood volume in dogs submitted to hemorrhage and in patients suffering from shock due to hemorrhage or skeletal trauma. Evidence indicates that gelatin solutions may have a beneficial effect in burns. There is thus clinical evidence that these solutions have a definite, though temporary, effect in relieving the state of shock; therefore it is often necessary to take recourse to multiple injections.

8. The smaller molecules on which the osmotic effects of gelatin solutions depend are rapidly lost from the blood stream, largely through the kidneys. In this respect the effect of gelatin may be contrasted with that of the plasma proteins which are not normally lost through the kidneys but, when present in excess, form reserves in the tissues.

9. The longer rodlike particles of gelatin persist in the blood stream and are presumably responsible for rouleau formation, for the increased sedimentation rate of the red cells and for the changes in the distribution of plasma proteins between the blood stream and the tissues.

III. *Limitations and Unanswered Questions*.—1. The solutions gel at about 20 C. and therefore cannot be used in cool or temperate climates in the field.

2. Proper typing of blood following the administration of gelatin solutions may be difficult. This problem should be studied further. It may be essential to warn that a sample of blood for typing should be withdrawn from each patient before the administration of gelatin solution.

3. Based on present information, the optimal solution mentioned showed slow but definite and continued degradation at temperatures encountered in certain theaters of war.

4. The viscosity of the optimal solution is definitely greater than that of whole blood.

5. It is not known whether a solution of this type will impair the return of normal function to kidneys in sustained ischemia or in the case of severe burns or the crush syndrome.

6. Gelatin solutions probably do not contribute significantly to nutrition. Their only place in medical therapy would be to restore a loss of circulating blood volume in acute injury of various types.

7. The influence of gelatin on the equilibrium in the distribution of plasma proteins between circulating blood and tissues should be further investigated.

RECRUITMENT OF PHYSICIANS FOR ARMY, NAVY AND VETERANS ADMINISTRATION

Recruitment procedures under which the state chairmen for physicians have operated for some time will be changed as a result of the following developments in the needs of the Army, Navy and Veterans Administration:

1. *Relaxation of Age and Other Requirements of the U. S. Navy*.—The U. S. Navy Medical Corps has recently increased its age limit to 55 years. Physical requirements have also been relaxed, with the result that men who have expressed a preference for Army service and who do not meet Army standards for general service may be referred to the U. S. Navy for consideration for commissioning by the Navy.

2. *Requirements of the U. S. Army*.—The U. S. Army Medical Corps will continue to commission for general and limited service men up to the age of 45 who have been declared available by Procurement and Assignment Service. In exceptional cases the U. S. Army will continue to waive age requirements for men for specific position vacancies.

3. *Requirements of the Veterans Administration*.—Since December 1943 the need of the Veterans Administration for qualified physicians has greatly increased. Therefore the following plans have been set up:

(a) Physicians under 45 years of age made available to the Army and who are not physically qualified for duty with Army

installations but who meet Veterans Administration requirements will be given Army commissions for assignment to duty with the Veterans Administration.

(b) Physicians under 55 years of age made available to the Navy and who are not physically qualified for duty with Navy installations but who meet Veterans Administration requirements will be given Navy commissions for assignment to duty with the Veterans Administration.

(c) Physicians between the ages of 45 and 63 years who have been declared available for appointment by the Army will be offered commissions by the Army for assignment to duty with the Veterans Administration only, except that those between the ages of 45 and 55 years found physically qualified for general service will be submitted by the Army to the Navy for consideration for duty with the Navy.

(d) Since the Navy will not appoint any physician who has passed his sixtieth birthday for duty with Navy installations or the Veterans Administration, all available physicians between the ages of 60 and 63 should be made available to the Army only for duty with the Veterans Administration.

TREATMENT OF WAR PRISONERS IN GERMANY

The German authorities have recently advised the International Committee of the Red Cross at Geneva of the methods employed in Germany for readaptation and rehabilitation to normal life of wounded prisoners of war. By arrangement with senior camp doctors, surgeons prescribe treatments suitable for prisoners who are cared for in the lazarets (military hospitals) or in the camps. They also supervise their application.

The directions for treatment by means of work are similar to those used by the German army for its wounded soldiers. This treatment consists mainly of (1) sports, (2) medical gymnastics, (3) manual labor such as sewing, toymaking, embroidering and knitting, (4) carpentry, tailoring, shoemaking, cabinetmaking and wood engraving, (5) work for the blind: basket, mat, slipper, broom and brush making, (6) gardening, kitchen work (vegetable cleaning) and laundry work.

In choosing the work appropriate to the functional treatment of the disabled prisoners, the surgeons take into consideration not only the therapeutic purpose but also the prisoner's aptitude and his future professional reinstatement.

Prisoners of war are expected to make their own tools and sometimes even the apparatus necessary for their work. In one camp the prisoners feasible to institute therapeutic occupational service, the wounded and sick requiring such treatment are transferred to lazarets or other camps.

In cooperation with Red Cross societies and other organizations, the War Prisoners' Aid of the Y. M. C. A. has provided many of the hospitals with essential materials for this treatment. In addition to athletic goods, sets of tools for carpentry, wood carving, gardening and shoemaking have gone to camps. During the past month 50 aircraft sets especially designed for prisoners of war were shipped and 500 have been ordered. The German authorities cooperated extensively with the Y. M. C. A. and the Red Cross in locating in one camp the British blind, providing a special teacher and facilitating the educational and rehabilitation program. These men, however, were fortunately repatriated on the exchange of seriously wounded prisoners last fall.

WAR PRODUCTION BOARD ISSUES ORDER COVERING CINCHONA DERIVATIVES

Under date of May 9 the War Production Board issued an order covering cinchona bark and cinchona alkaloids, requiring that any person who wishes to get quinidine for consumption and not for resale must furnish the supplier with a physician's prescription. This applies to all deliveries of quinidine to the ultimate consumer. The prescription must be signed by a physician licensed to practice medicine and must state either that the quinidine prescribed is to be used for the treatment of cardiac disorders or "pursuant to War Production Board Order M-131, paragraph (e)." The amendment further requires that no quinidine shall be delivered pursuant to such prescription which is written for more than fifty 3 grain tablets or capsules, or

for the equivalent of 150 grains of quinidine in other dosage forms. Furthermore, the prescription may not be used a second time to obtain additional quantities.

WARTIME GRADUATE MEDICAL MEETINGS

Additional subjects and speakers for Wartime Graduate Medical Meetings have just been announced:

At U. S. Naval Hospital, Portsmouth, N. H.: Joint Injuries, Dr. Ezra A. Jones, June 15.

At Dispensary, U. S. Naval Construction Training Center, Davisville, R. I.: Blood Dyscrasias and Transfusions, Dr. William Dameshek, June 15.

At Station Hospital, Bradley Field, Windsor Locks, Conn.: Blood Dyscrasias and Transfusions, Drs. Ralph W. Kendall and Louis P. Hastings, June 15.

At Station Hospital, Fort Monmouth, N. J.: Basic Concepts in the Treatment of Burns, Dr. James Walker, June 7; Low Back Pain, Dr. Paul N. Jepson, June 14; Acute Glomerulonephritis, Dr. George Morris Piersol, June 21; Malignancy as Seen in Armed Forces, Dr. Stanley P. Reimann, June 28.

At Station Hospital, Indiantown Gap, Pa.: Peripheral Nerve Block, Lieut. Comdr. Don Hale, June 7; Acute Infectious Hepatitis, Dr. Henry J. Tumen, June 14; Complications Occurring in Diabetes, Dr. David W. Kramer, June 21; The Relationship of Pain and Tenderness to Body Mechanics, Dr. John C. Howell, June 28.

At Newton D. Baker General Hospital, Martinsburg, W. Va.: Psychosomatic Medicine, Dr. Lawrence F. Woolley, June 5.

At Station Hospital, Camp Lee, Va.: Aviation Medicine, General, Dr. Ludwig Lederer, June 2.

At Station Hospital, Fort Eustis, Va.: Accident Prevention in the Army Air Forces, Major Richard H. Follis, June 8.

At Station Hospital, Langley Field, Va.: Modern Diagnosis and Treatment of Pulmonary Tuberculosis, Dr. Dean B. Cole, June 6; Respiratory Diseases and Their Modern Treatment, Dr. Porter P. Vinson, June 13; Treatment of Cardiovascular Emergencies, Dr. William B. Porter, June 20.

At U. S. Naval Hospital and U. S. Naval Academy Dispensary, Annapolis, Md.: Maxillofacial Surgery (demonstrated with lantern slides), Dr. John Staige Davis, June 16.

At Station Hospital, Fort George G. Meade, Md.: Acute Rheumatic Fever, Dr. Elliott V. Newman, June 2.

COMMUNITIES IN NEED OF PHYSICIANS

In addition to the communities listed in THE JOURNAL, May 20, page 217, the following community has applied to the U. S. Public Health Service for federal assistance in obtaining the services of physicians under the recently enacted law authorizing an appropriation of \$200,000 for the relocation of physicians:

Vale (Malheur County), Oregon.

Physicians interested in locating there or in previously announced communities should communicate with the Surgeon General, United States Public Health Service, Washington (Bethesda Station), D. C.

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

(Continuation of list in THE JOURNAL, May 20, page 217)

ARKANSAS

Baptist State Hospital, Little Rock. Capacity, 340; admissions, 8,717. Mr. John G. Dudley, Administrator (3 interns).

INDIANA

Logansport State Hospital, Logansport. Capacity, 2,395; admissions, 8,211. Dr. C. L. Williams, Superintendent (residents—psychiatry).

MASSACHUSETTS

Boston Floating Hospital; Joseph H. Pratt Diagnostic Hospital, Boston. Mr. Frank E. Wing, Director (4 resident fellowships—pediatrics, medicine, October 1).

NEW JERSEY

Morristown Memorial Hospital, Morristown. Capacity, 157; admissions, 3,214. Col. Charles Rees Lloyd, Director (2 interns).
Perth Amboy General Hospital, Perth Amboy. Capacity, 197; admissions, 4,729. George C. Schicks, Director (interns, residents).

ORGANIZATION SECTION

OFFICIAL NOTES

ANNUAL CONGRESS ON INDUSTRIAL HEALTH

Sixth Annual Meeting, Held in Chicago, Feb. 15-16, 1944

DR. STANLEY J. SEEGER, Texarkana, Texas, Presiding

FEBRUARY 15—MORNING

Report of the Council on Industrial Health

DR. STANLEY J. SEEGER, Texarkana, Texas: This report appears in full in this issue, page 239.

Industrial Health—A Restatement of Objectives

DR. JAMES E. PAULLIN, Atlanta, Ga.: The Council on Industrial Health early in its career came to the conclusion that the physician in industry should concern himself with prevention of disease or injury in industry by establishing proper medical supervision over industrial materials, processes, environments and workers, with health conservation of workers through physical supervision and education and with medical care to restore health and earning capacity as promptly as possible following industrial accident or disease. An industrial medical department which fails to provide all of these activities is by definition substandard. Services extending beyond these objectives should be regarded as falling in the scope of the private physician and organized community health facilities. Where such community health and medical facilities are absent or inadequate, industry must make its own provision. These minimum standards, if widely applied, would contribute enormously to the health of millions of workers and to the productive capacity of industry.

What do we need to do to turn this latent interest into effective action? Industrial health service will thrive if it provides a satisfying professional experience, attractive to high minded, well trained physicians. Several elements seem to be particularly important: that there be no subordination of the physician's obligation to the best interests of individual patients, that the plant medical director have real executive authority in the industrial organization and that he have opportunities for professional contacts and advancement. If a substantial demand is to be created, we must provide trained personnel to meet it. This is the obligation and opportunity of medical education and medical organization. No physician in a predominantly industrial society should be allowed to graduate without sound basic training in modern industrial health methods. Proper local medical organization should see to it that this level of training is maintained throughout professional life and that there be satisfactory facilities for consultation in industrial hygiene, in toxicology and in the clinical specialties. We must foster much closer coordination between the industrial and the private practitioner so that ill or injured are referred for competent treatment early and return to work at the earliest possible opportunity. Much more effort should be expended on the problem of health education for the individual worker. These technics are becoming well understood, and personnel is being trained to carry out these activities. No substantial improvement in the health of the industrial population is likely to occur until each individual worker develops a personal interest in safe and healthful living in industry, at home and at play. It is in this direction that organized labor can make its most significant contribution to the health of its membership.

One inference is particularly plain—that the Council on Industrial Health redouble its efforts to bring employer, worker and physician closer together nationally, in the states and locally. Under such an arrangement, growth of interest would be facilitated, improvements in standards of service would suggest themselves and, as far as public relations are concerned, there would be an unparalleled opportunity for acquainting industry, labor and the community at large with the contribution which medicine has made to promote and conserve the welfare of a very vital segment of our population. In an approach of this kind we may discover a formula for the

distribution of essential medical services to workers based on personal, professional and corporate initiative without the necessity for intervention by a paternalistic federal social security program.

Preventive Medicine: The Key to Victory and World Recovery

BRIG. GEN. JAMES STEVENS SIMMONS, U. S. Army: In spite of the war, the people of the United States are now healthier than at any other period in their history. This condition has been produced, not by chance, but by the united efforts of all the important health agencies of the nation. The history of American public health work may be divided into two main periods. The first period lasted from the beginning of the American Revolution until shortly after the Civil War, approximately one hundred years. The modern period in public health began about 1872, the year in which the American Public Health Association was established. Between 1872 and 1900 rapid advances were made in identifying bacteria and pathogenic fungi. The protozoan causes of the malarial fevers, tropical sore and amebiasis were known. The viruses of smallpox and foot and mouth disease had been discovered. Advances had been made in immunology, and the insect transmission of Texas cattle fever, filariasis and malaria had been demonstrated. This new knowledge created an increasing interest in epidemiology and the development of new methods for the control of disease. In 1939 the Surgeon General initiated the present Preventive Medicine Service in his Office, which consists of the divisions of Sanitation and Hygiene, Laboratories, Epidemiology, Tropical Disease Control, Venereal Disease Control, Sanitary Engineering, Occupational Health, Nutrition, Medical Intelligence and Civil Public Health. It also includes the Board for the control of Epidemics in the Army. This board, composed of more than 100 civilian consultants, is divided into ten special commissions, each concerned with a specific problem of disease control. The service has advanced by careful planning based on estimates of future possibilities, by constant accumulation of all available scientific knowledge, by vigorous application of the most promising control plans available and by initiating research on problems of immediate significance to the armed forces. The service has utilized every available facility, has enlisted the services of many highly qualified persons and has maintained close liaison with numerous governmental and civilian health agencies. These include the National Research Council, the Committee on Medical Research, the U. S. Public Health Service, the Bureau of Medicine and Surgery of the Navy, the Pan American Sanitary Bureau, the U. S. Department of Agriculture, the coordinator of inter-American affairs, the American Red Cross, the International Health Division of the Rockefeller Foundation and most of the scientific institutions and societies in the fields of biology, medicine and public health.

The disease death rates in our present far flung forces have not only been lower than those of World War I but lower than the annual death rate in the Army during any one of the last ten years of peace. The greatest difficulty encountered in the development of the Army's health program has been the inability to procure sufficient adequately trained personnel to carry it out. This indicates a serious defect in our present system of medical education.

Certain phases of the program have been handled by other medical agencies using their own personnel. For example, the U. S. Public Health Service, working through state and local health departments, has provided for extramilitary sanitation and disease control in the civilian areas adjacent to military reservations. Likewise, much of the medical research initiated by the Army has been coordinated through the National Research Council and the Committee on Medical Research and carried out by personnel of the U. S. Public Health Service, the Department of Agriculture and various nongovern-

mental, scientific institutions. Sufficient numbers of trained persons have not been available. Malaria control officers have been especially scarce, and of a group of 480 who applied only 160 were acceptable on the basis of required training. Tropical disease experts have been even scarcer. Three thousand applications from bacteriologists produced only 200 who were acceptable. Eleven hundred applications from food and nutrition specialists found only 63 suitable. Thirteen hundred applications from biochemists yielded only 136. The Army therefore established a gigantic training program, which has provided short two to three month courses of instruction in the various health specialties. Since we entered the war, the Medical Department has given this type of health training to almost 30,000 officers and enlisted men. The nation faces a great opportunity to continue the health education of these persons and thereby place the public health of the United States on a broader and firmer basis than has ever yet been achieved by any nation in history.

A definite responsibility falls on our system of medical education. There must be incorporated into its various branches a greater appreciation of the value and need of the preventive aspects of medicine.

PANEL DISCUSSION ON POSTWAR INDUSTRIAL HEALTH

DR. R. L. SENSENICH, South Bend, Ind.: This panel will attempt to determine how industrial health services can be made to work in better fashion and to define the best means for maintaining interest after the stimulus of war production is over.

Medical Service in Postwar Industry

DR. HARVEY BARTLE, Philadelphia: The American medical profession must come to grips with the opportunity to lead industry and labor in a health service without prejudice, broad in its coverage, humane in its intent and progressive in character. Training facilities in our medical schools, extracurricular features in hospitals and special training in industry with emphasis on professional standards and ethics should be provided. Refresher courses should be arranged. The space that is being allocated to the medical service is a splendid index of a changed attitude. The preferable location should be near the main entrance and exit and the personnel, safety and employment divisions. Good housekeeping, light and ventilation are essentials. Equipment should be modern and complete. Preplacement examinations are the continuation of appraisals in the antepartum, maternal, infancy, preschool, school and college periods. The objectives are to facilitate placement and advancement of workers in accordance with individual physical and mental status, to acquaint the examinee with his physical status to guide him in improving and maintaining good health, to safeguard the health and safety of others, to discover and control unhealthful exposure and to promote cooperative support.

Physical and mental examinations give a factual basis on which all further medical service and attention are predicated. Therefore they must be accurate in appraisal, unprejudiced in evaluation and personal in principle. The mental, neuropsychiatric or personality appraisal is best carried on by inspection during the general physical examination. A set pattern or guide facilitates the record of these mental impressions at the conclusion of the examination, with the examinee being unaware of it. Health or periodic examination should be made at regular intervals, in which the procedure is the same, supplemented by previous records. Examinations after disabilities are obvious. With the great influx of women in industry in arduous work, a new task confronts the examinee. If the results of appraisal are expressed in mental, physical and neurologic levels, the work of a competent placement officer is facilitated.

Preventive medicine is a most important feature in our industrial medical service program, in coping with physical trends discovered on examination, existing diseases of a transmissible character and deleterious gases, substances and pollutants in the industrial environment. Hygiene and sanitation services are important in lighting, sanitation, good water, good food and good air and control of exposures to the elements, polluted air, chemical gas and other deleterious substances.

Workmen's compensation insurance and benefits involve three groups: the worker who seeks redress, industry, which must absorb the cost and the adjudicating agency. When abuse and dissatisfaction result it is directly traceable to arbitrary attitudes and actions of either of the first two parties, which in some instances can be controlled only by governmental agencies. Prevailing conditions can be ameliorated only by industry and workers selecting an agency to adjudicate, to which they relegate full power and whose decision they are willing to accept as final and binding, with the privilege of appeal. It naturally presupposes a third party—an insurance group to which a unified approach can be made, for justice and equity, by management and labor, both of whom shall be responsible for the payment of a per capita premium to the agency. This mutual financial responsibility will create a mutual and equal interest in fair awards. Free enterprise is injected into the problem in lieu of paternalistic governmental control and management. The third group will have a salutary effect on the other two in advancing preventive measures, corrective or rehabilitation measures, financial distress and placement.

Free choice of physician seems to mean that industry shall not impose its medical and surgical personnel. This has been overcome in a large measure by industry making available the leaders in medicine and surgery as their representatives. Is the average worker competent to select a physician? The industry responsible should control the agent whose services are sought. This presupposes the right of appeal.

DR. SENSENICH: Dr. Bartle has pointed out the essentials of industrial health service as developed by the Council. The purpose of this presentation has been to define the practical scope of industrial health service, methods of administration and the necessity for adequate trained personnel. Next we are going to hear from Mr. W. P. Jacob of Long Island City, who represents the National Association of Manufacturers. We are going to ask Mr. Jacob to speak to these points: Is industry generally willing to support a program of this kind or does it have one of its own? What arguments are necessary to convince employers, especially in small plants, that industrial health has real advantages and that this obligation should be voluntarily assumed?

Health in Industry

MR. W. P. JACOB, Long Island City, N. Y.: In 1937 there was established in the National Association of Manufacturers a Division on Health in Industry or general medical care. In 1940 a series of clinics was started which have multiplied, reaching at individual clinics from 200 to as many as 1,000 persons. They are educational clinics basically in the subject of industrial health, preventive to a great extent. In 1941 the National Association of Manufacturers published "Industrial Health Practices," followed by a check list on "How Do We Rate?" These were distributed to the rapidly growing association, which now includes about 10,000 members.

There has never been discrimination in the National Association of Manufacturers between large and small companies. Medical care in industry is primarily introduced for the benefit of those persons in the wage earning class who are unable to take care of themselves. The National Association of Manufacturers has constantly tried to search the field intelligently with the idea of bringing before the personnel of smaller companies industrial health's basic economy.

There is only one way to bring this health program before smaller industries in the postwar period, and that is to collaborate completely through the medium of small local societies. You will find the most whole hearted cooperation from industry, and that industry is cognizant of the importance of this in helping the medical profession get the smaller groups together to gain those benefits which we know are of vital importance to this subject as a whole.

Postwar Industrial Health

MR. ROBERT J. WATT, International Representative, American Federation of Labor, Washington, D. C.: The organized workers are convinced that postwar industrial health is dependent on the establishment of a system of health insurance which will provide adequate hospital and medical care. Paying for medical

care in small regular amounts through payroll deductions during employment is the best method to enable workers to earn insurance protection.

Workers agree with the action of the House of Delegates of the American Medical Association in September 1938, when it approved the following resolution:

Your committee recognizes the soundness of the principle of workmen's compensation laws and recommends the expansion of such legislation to provide for meeting the costs of illness sustained as a result of employment in industry.

Under the present unemployment compensation system, workers in covered employments receive cash unemployment benefits if they are able to work but cannot find a job. The worker who reaches the age of 65 and is covered by the old age and survivors' insurance provisions of the act also receives monthly cash payments as long as he lives. The worker who loses his job because of injury or illness not connected with his work has no protection whether the illness lasts a few weeks or a few months or years. And every day in the United States between a million and a million and a half workers are absent from their jobs because of illness or injury. More than nine tenths of the time lost in industry for this reason is the result of sickness, and accidents not covered by the workmen's compensation laws.

Sickness comes oftener and lasts longer and death comes earlier in the homes of the poor. Members of families with incomes under \$1,000 have nearly twice as many days of disability as those in families with incomes of \$3,000. Although the poor have greater and more frequent need for care, they get less. We cannot predict the costs of illness. Families can budget for their other expenditures but not for medical care. Nearly \$4 billion was spent in 1942 on account of illness and disability—less than 4 per cent of the total national income. A spread of these expenditures through an insurance system would enable each family to obtain needed medical and hospital care on the basis of making a contribution proportionate to its income.

Time has demonstrated that our present methods are inadequate. Only in few cases can the worker whose earning power is crippled by accident or illness afford the care he needs. We agree with you on the necessity for prompt diagnosis and medical attention for those who are ill but remind you that the obstacles are almost insuperable for the great majority in the absence of a system of health insurance.

Workers want to establish a complete health insurance program for all wage earners. They do not agree that such insurance should be restricted to voluntary programs among the more prosperous, which leave a fringe of wealthy persons paying high fees to finance free clinics and noncollectible services rendered to the one third of our people.

The cooperation of the medical profession is essential to the efficient operation of any program providing for medical care. As a representative of an organization of nearly 7 million men and women, I can sincerely say that we are anxious for your help and advice. The choice of a doctor should be assured under any system and, even more important, the opportunity for change of physician should be left to the individual. Physicians and labor and management should take the initiative in getting started on a joint approach to the problem of promoting health and preventing accidents. We realize that it may not be a spectacular job, but the opportunity it presents should appeal to every worthwhile instinct we possess.

We don't believe that a system of health insurance would dull instincts of public service. We believe that health insurance would enable a doctor to practice medicine full time instead of having to be part doctor and part collecting agency and business man. We believe that the medical profession will achieve new heights of public service and personal unselfishness when we have a health insurance which enables a doctor to minister to those who need his aid most but who now are unable to get competent medical care. We urge you to give sympathetic consideration to this problem. Try to think of it in terms of the worker who is ill and, if adequate medical care is not available, may remain a burden to the family and to the community. We urge you to lend your great skill and resources in working out the best possible system in one of the few lands where we can still search for truth, progress and human service.

What Does the Division of Industrial Hygiene of the U. S. Public Health Service Have in Mind for the Postwar Period?

DR. J. G. TOWNSEND, Medical Director, Bethesda, Md.: The interest of government in raising the worker's health to an optimum level is reflected by the existence of an organization of about 500 persons in the U. S. Public Health Service and in thirty-eight industrial states where 95 per cent of the country's labor force is employed.

Postwar industrial hygiene needs can be approached from the federal, state and local levels, as follows: 1. Federal level. Field activities: The present work of the Federal Industrial Hygiene Division in coordinating the work on a nationwide basis should be continued. Statistics: Available data for the determination of industrial hygiene needs are limited. Moreover, adequate data useful in the evaluation of industrial hygiene services performed are practically nonexistent. Machinery with ample personnel and facilities should be set up in the various states, making possible the collection and analysis of data on nonoccupational sicknesses, occupational diseases and compensation for occupational diseases. 2. State and local levels: Minimum industrial hygiene services should be established in the states which now have no such services (Arizona, Delaware, Florida, Maine, Nebraska, New Mexico, South Dakota and Wyoming). Organizations in those units now established should be strengthened by increasing staffs, appropriations and other facilities by state financing. Industrial hygiene services at the district city and county health department levels should be decentralized and such services should be correlated with community resources. Present functions of industrial hygiene services should be expanded. Universities and schools should be stimulated to teach industrial health and medicine to a larger number of professional groups in order to meet the demand for more personnel.

The Essential Features of the Kaiser Plan

DR. SIDNEY R. GARFIELD, Oakland, Calif.: The employers must concern themselves more and more with the nonworking portion of their workers' lives. The principles of the Kaiser plan are: 1. Prepayment. Industrial prepayment by the employer via the insurance company. Nonindustrial prepayment by the employee. 2. A comprehensive medical coverage. 3. Group practice. 4. Adequate complete facilities—offices, laboratories and hospital under one roof. 5. Nonprofit operation. Our plan using these principles fulfils the three conditions for industrial health service, namely comprehensive medical coverage at a cost employer and worker can bear, producing a new medical economy whereby the physician and hospital are better off if the worker never gets ill. The plan stands on its own feet, needs no endowment or charity, builds and pays for its hospitals, provides adequate income to the physicians and even provides funds for research and training of personnel.

I have been asked if the Kaiser Plan would protect against federalization of medicine. The members of our plan receive more medical care than the Wagner act would provide. They haven't the slightest need for government medicine. I doubt if the government would attempt to federalize medicine if the need did not exist. Mr. Kaiser envisions a postwar industrial health service as follows: 1. A health plan operated by the physicians themselves giving industrial and nonindustrial care to the worker. He needs medical care in either case. 2. An insurance plan which pays a weekly compensation to a worker who cannot work because of illness or injury, whether industrial or nonindustrial. He needs the income in either case. 3. An insurance plan which pays death benefits to the families of workers, whether cause of death is due to industrial or to nonindustrial factors. The family could use the funds in either case.

Such an industrial health service would have many advantages: It would do away with a lot of the disagreeable features of workmen's compensation laws, such as argument as to whether a case is entitled to medical care and compensation, since the worker would get this service in either case, whether industrial or nonindustrial. It would place medical care in the hands of the doctors, where it belongs, like it or not. We must admit that the insurance companies in many instances control industrial medicine. It would place insurance companies in their proper province—the handling of benefit payments and

death benefits and take them out of medical service, where they don't belong. It would place the government in its proper province of supervision and regulation—safety standards in plants and safety inspection. Since the worker and employer both would share in the entire cost of the program, they both would be interested in its proper management and usage.

Opportunities for Insurance in the Field of Industrial Health Education

MR. NEVILLE PILLING, Chicago: No agency can match the casualty insurance industry in the opportunities and in the capacities which it can bring to bear over a wide field of industrial effort on a national scale. Such benefits will be reflected directly in industrial earnings. Its worthwhileness to labor cannot be gainsaid, because improvement in health benefits workers individually and collectively. This is a type of program which organized labor is willing to support and to assist in a practical way. Therefore, with the special aids and facilities and with the sales point of view which exists and is part of the stock in trade of casualty insurers, it requires only a decision of top management to undertake this task.

Some of the well established facts are that the average man loses $\frac{1}{10}$ day per annum from occupational causes and the average man loses $\frac{8}{10}$ days per annum from nonoccupational causes. The successful control of nonoccupational absence depends largely on ability to influence human behavior.

The payroll is unquestionably the largest single factor in industrial costs. It follows that, as manpower is efficient or inefficient, so the payroll dollar is efficient or inefficient. Yet many managers pay attention to the effect of inefficient payroll dollars only to the extent of criticizing and vilifying labor, labor unions and administration policies and by dwelling on humanity's inhumanity to management and capital.

Insurance companies are in the business of protection, and true protection starts with prevention. Insurance can best serve industry and itself by being more useful to industry. To be more useful to industry it must be more useful to labor, since labor is the subject with which the compensation insurer must deal.

The health of the industrial worker and his family will almost certainly become a more serious problem in the future, owing to the increasing influence of old age and its diseases. With a total population increase of 7.2 per cent in the last ten years, the increase in those 65 or more years old was 35 per cent. Many of these people suffer from chronic, progressive and disabling disorders. There is only one practical cure—continuous and competent health education. This is the most vital component of any industrial health program. When combined with the necessary facilities from which the industrial worker can draw service as he needs it for himself and his family, it must bring benefits to labor and management.

The workmen's compensation insurance carrier can through its contact sources bring to industrial America a service the value of which is almost beyond the ordinary comprehension if the managements of those insurers will envision the possibilities and initiate the simple steps which are necessary to make this present idea a living and practical treatment of the first function of insurance protection, namely accident and disability prevention.

FEBRUARY 15—AFTERNOON

DR. LEVERETT D. BRISTOL, New York, Presiding

New Developments in Occupational Medicine—Aviation

MAJOR GEN. DAVID N. W. GRANT, the Air Surgeon, Washington, D. C.: Flight surgeons believe that the first step in the maintenance of good health, low accident rates and high efficiency is the careful selection of men best fitted for specialized tasks. Specialized physical standards are important in the selection of aircrews because of the severe strain flight imposes on their bodies. The Army Air Forces have accordingly formulated the now famous "64 examination" with rigorous standards for vision and hearing, for heart and circulation. The demands of constant attention to exacting operations, the frequent necessity for quick decisions of vital importance and the constant threat of disaster also place a severe nervous strain on an airman. The 64 examination

accordingly includes a thorough search for defects in an applicant's nervous and mental characteristics. Only those who pass these exhaustive tests are admitted to training for flight duty. We have prepared a series of tests which eliminate applicants with inadequate native alertness and intellectual qualifications. After a man has been judged physically and mentally capable of performing the duties of an aircrew member, his special aptitudes are assessed by further psychologic and psychomotor tests. Those who demonstrate good judgment, facility in learning eye-hand coordinations and a high degree of emotional stability, with qualities of leadership, are preferred as pilots; accuracy of motor coordination in the execution of precise manipulations and quick reaction time meet the requirements for a bombardier; and interest in mathematics and logical, precise and exact habits of thinking suggest assignment as a navigator. At the present time nearly two hundred aviation physiologists in about fifty altitude training units teach all aircrews about the hazards of high altitudes and the need of their bodies for oxygen. Flight surgeons are given a nine weeks course of training in the School of Aviation Medicine at Randolph Field. Here they receive intensive instruction in problems unique to aviation. To supplement this training, competent neuropsychiatrists are assigned to each of the commands and to the overseas Air Forces for consultation and advice to the squadron surgeons.

An Institute of Industrial Health—Plans of a Proposed Development in the Medical Science Center of Wayne University

DR. EDGAR H. NORRIS, Detroit: It has been estimated that the long range program for a modern medical science center will involve an investment of from 50 to 100 million dollars. In Detroit, where we are building this institution, we have circumstantial advantages favorable to the development of a comprehensive educational program in the field of industrial health. The entire population of Detroit is geared to industry, and the social community typifies the purest form of industrial civilization yet known. In developing our Medical Science Center we shall not be restrained by the limitations imposed by physical plant; we will plan and build for the needs of the program. Our program will be enhanced by the careful selection of a faculty whose members must possess the vision and the realistic eagerness required to conduct an educational program of broad scope and of practical effectiveness.

A school of industrial health must typify the philosophy of preventive medicine. It should conduct its educational program largely for the benefit of graduate students. The educational experience must be one of instruction and of learning; it must combine teaching and research. The curriculum of the school of industrial health must be made as flexible as possible in order to permit its unhampered evolution. Emphasis in teaching must be placed on practical information. The organization of the school will include a number of divisions and departments.

With the establishment of such schools we may successfully advocate the prompt organization of a national qualifying board to certify those physicians who are adequately trained to work as specialists in the field of industrial health. Comprehensive course work must also be provided for claims and surety executives, for industrial hygiene engineers, for industrial sanitary engineers and for industrial safety engineers, for nurses and first aid attendants; special less extensive courses will need to be made available to executives, to foremen and to personnel directors.

A Visual Service for Small Manufacturing Plants

DR. HARRY S. GRADLE, Chicago: This article appears in full in this issue, page 253.

Medicine, Labor and Industry Join Hands in Philadelphia

DR. CHARLES-FRANCIS LONG, Philadelphia: This article appears in full in this issue, page 254.

The Conquest of Tuberculosis in Industry

DRS. HERMAN E. HILLEBOE and DAVID M. GOULD, Washington, D. C.: This article appears in full in this issue, p. 241.

FEBRUARY 16—MORNING
DR. CLARENCE D. SELBY, Detroit, Presiding

The New Movement in Industrial Sanitation

MR. MOHE H. SOLWORTH, Louisville, Ky.: This paper appears in full in this issue, page 243.

Health Education for Industrial Workers

DR. W. W. BAUER, Chicago: This article will be published in full in THE JOURNAL as a Council report.

Maladjustment in Industry

DR. FRANK F. TALLMAN, Lansing, Mich.: Reasons for a practical program of industrial psychiatry and mental hygiene include (a) general tension of war burden citizenry, (b) employment of people previously considered nonemployable or undesirable either because of age, sex or physical handicap, (c) training and placing large numbers of workers quickly, (d) the appointment to supervisory positions of individuals who are inadequately trained and, of more importance, temperamentally unsuited for leadership, and (e) employment of veterans of World War II, which implies emotional and psychologic problems.

Maladjustment in industry is a factor in absenteeism, accidents, discordant interpersonal relationships, inefficient work and low morale. Mental hygiene and psychiatry can contribute useful attitudes and technics in dealing with these problems.

The Story of Penicillin

DR. CHESTER S. KEEFER, Boston: Penicillin is one of the most powerful antibacterial agents that we have available for the treatment of a limited group of infections, usually those due to gram positive organisms and to gram negative cocci, especially the gonococcus and the meningococcus. It is of no value in the treatment of gram negative bacillary infections. With the passage of time we shall gain more information concerning the use of this material in the treatment of many infections which have carried with them a high fatality rate and many months and days of illness, so that we shall be able to reduce the fatality rates and to reduce the total number of days of illness of a great many patients.

The Detection and Treatment of Malnutrition Among Industrial Workers

DR. TOM D. SPIES, Cincinnati: This article appears in full in this issue, page 245.

FEBRUARY 16—MORNING

LIEUT. COL. RAYMOND HUSSEY, M. C., U. S. Army, Presiding

MEDICAL SERVICE UNDER WORKMEN'S COMPENSATION

Medical Developments in Workmen's Compensation—1943

J. W. HOLLOWAY JR., Chicago: The legislatures of forty-four states convened in regular session during 1943. Approximately 530 workmen's compensation bills were introduced during the year.

There are now fifteen states, and the District of Columbia, that provide compensation for occupational diseases under full coverage, namely California, Connecticut, District of Columbia, Illinois, Indiana, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New York, North Dakota, Ohio, Oregon, Washington and Wisconsin. Similar coverage is provided by the Longshoremen's and Harbor Workers' Act and by the United States Employees' Compensation Act.

In Virginia a commission of seven members was appointed to study the question of occupational diseases in relation to workmen's compensation coverage. Two members were to be appointed by the governor, one selected from the employer group and one selected from the employee group, two members from the senate to be appointed by the president thereof and three members from the house of delegates, to be appointed by the speaker thereof.

There is pending in Congress a bill introduced by Representative Tolan of California to permit chiropractors to treat the beneficiaries of the United States Employees' Compensation Act (H. R. 786). A subcommittee of the House Committee

on the Judiciary scheduled a hearing on the bill November 10 last year. The chiropractors were represented by the director of education of the National Chiropractic Association, John J. Nugent, D.C., New Haven, Conn., and by the research director of that association, C. R. Weiant, D.C., of New York City. Three witnesses appeared for the medical profession, Dr. Barney J. Hein of Toledo, Ohio, an orthopedic surgeon with long experience in industrial medicine, a past president of the Ohio State Medical Association, and the present chairman of the committee on industrial health of that association; Dr. Wilburt C. Davison, dean of Duke University School of Medicine, and Congressman A. L. Miller of Nebraska, a doctor of medicine, a past president of his state medical association and a former state health officer of Nebraska. No further action has been taken with respect to this bill, but not only would its enactment dilute the quality of care made available to injured workmen who are entitled to the benefits of the United States Employees' Compensation Act but the federal recognition would be leached on heavily by chiropractors in seeking similar privileges under state workmen's compensation laws.

The Interdependent Problems of the Administrator and the Industrial Surgeon

MRS. EMMA S. TOUSANT, Boston: Some of the interdependent difficulties of the industrial surgeons and the commissioners in dealing with injured persons are: 1. Failure of the doctor to create confidence in the injured workman. The workman is entitled to know what to expect after an injury. He is entitled to know the probable minimum period of disability. 2. Treating symptoms in hope that the cause will be reached, through lack of training or desire not to incur expense. The employee suffers from overtreatment if the diagnosis is not determined and sometimes even if it is. 3. A tendency to do exploratory operations. 4. Improper treatment which cannot be corrected without more surgery and then perhaps without success. 5. Lacking an objective. There seems to be a failure on the part of the industrial surgeon to create and stimulate an objective on the part of the employee. This objective should be to return him to industry at the earliest possible date.

We in Massachusetts appointed a medical advisory committee for the purpose of advising the board and being a liaison group between the board and the medical profession. This committee consists of seven members, all of whom are recognized in their various specialties. They give freely of their time, when asked, and their sole aim is to develop the medical aspects of compensation to their maximum efficiency.

Disability Evaluation—The Solution in Wisconsin

MR. VOYTA WRABETZ, Madison, Wis.: The purpose of the workmen's compensation acts in the various states was designed to give speedy and definite benefits to workmen who were injured in the course of their employment. Most compensation laws emphasize physical restoration, and that means giving to the injured employee all the medical treatment and hospital care that is necessary to cure and relieve him from the effects of his injury.

By placing the entire cost of compensation on industry we furnish the incentive to provide competent medical care. All disability must be evaluated, because on that depends the question of how much compensation an injured employee is to get. By far the largest number of cases involve questions of temporary disability only. The determination in such cases is relatively easy and involves the ability or inability of the worker to resume employment, the agreement by the employee that the physician is correct and the actual return to a job. Following this comes the payment of compensation due for disability sustained, the filing of proper reports to an insurance carrier and the filing of proper reports to the administrative agency that supervises the work.

The physician must maintain his position as physician or surgeon of the injured employee and not as an employee of the employer or insurance company, even though he is paid by them. It is by maintaining this position and by building up in the mind and heart of the injured man that he is going to be treated fairly and justly that we shall have the elimination of a lot of controversy.

The determination of permanent disability is more difficult. Every compensation law contemplates the payment of compensation for permanent disability on the basis of possible future wage loss. The physician must testify as to the possibilities of employment and the possibilities of handicaps as they apply to certain occupations. To determine many of these questions necessitates on the part of the physician not only a knowledge of the physiologic and anatomic damage but a thorough knowledge of industry itself, various occupations and the kind of work that is involved in various jobs so that when the employee whose disability he must now evaluate comes to him he must be in a position to tell him honestly and frankly and with confidence what kind of a job he can do with his disability.

The Industrial Commission in Wisconsin believes that disability laws should be made as simple as possible to administer and to understand. This problem was met when a recommendation was presented to the legislature that for certain classic disabilities there ought to be a definite amount of compensation payable based on a wage. In many states schedules of disability were adopted providing for a certain number of weeks of compensation for certain well defined disabilities.

Is the Present System of Occupational Disease Coverage Adequate?

DR. RUTHERFORD T. JOHNSTONE, Los Angeles: This article appears in full in this issue, page 271.

Second Injury Funds in Workmen's Compensation Laws

MR. J. DEWEY DORSETT, New York: Second injury funds were created to take care of the problem of compensation to handicapped workmen. It was felt desirable that these handicapped workers suffering second injuries should receive full compensation, but, at the same time, that the cost should not be placed on their last employers but rather on industry generally. Special funds, therefore, were created to which industry, as a whole, contributed either directly or through its insurance carriers. After payments for compensation for the second injury taken by itself ended, the balance, based on disability due to the combined injuries, was made payable out of these funds.

In some states, payments are limited to cases in which there has been a previous loss of a specified member followed by the loss of a similar member, while others are broader and include nearly all cases of permanent partial disability followed by further permanent partial disability, which in combination results in total disability. In at least one state the fund covers all permanent partial disabilities in which the second injury in combination with the first results in greater disability than that caused by the injuries taken by themselves. For example, one man may have lost several fingers of the hand and subsequently loses the remaining fingers. This would amount to the loss of the hand, whereas the second injury taken by itself would have amounted to a comparatively minor scheduled loss.

Second injury funds today are found in Hawaii, Idaho, Illinois, Maine, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New York, North Carolina, Oklahoma, Rhode Island, South Carolina, Utah, Wisconsin and the District of Columbia and under the Longshoremen's Act. Five states created second injury funds in 1943. This is evidence of the increasing interest in funds of this type. No doubt this is due to the expected return of partially disabled veterans. Further legislation of this type may therefore be expected.

Supervising Standards of Medical Service for the Injured Workman

DR. D. J. GALBRAITH, Toronto, Ont.: No administrator of a compensation act, particularly if he is medically trained, can be other than depressed by the seemingly endless procession of workmen coming up for permanent disability awards, with stiff and useless hands, ankylosed major joints, amputation stumps to which artificial limbs cannot be fitted and the so-called traumatic neurosis: conditions which could in many cases have been prevented by adequate treatment in the early stages of their disability. It is our responsibility to make every possible effort to see not only that accident prevention work is vigorously carried out but that, if injured, the workmen shall receive as nearly as possible the same type of treat-

ment as we of the board would endeavor to supply to a member of our own family if he was similarly afflicted. In order to supervise treatment we have a full time medical staff of eleven young, well trained surgeons and medical men, headed by a part time orthopedic surgeon assisted by a part time radiologist. We have also two part time physicians trained in occupational diseases who are members of the staff of the department of health of the province and a staff of five full time physicians specially trained in silicosis work, who devote their full time to these examinations; a referee board of three specialists in silicosis, who each devote about two months to our work during the year; altogether twenty-three men, sixteen of whom are full time.

Most of the serious industrial injuries involve fractures. We secured as our chief surgeon one of the outstanding orthopedic surgeons of our province and, to assist him, a radiologist of unquestioned ability. Our medical staff examines the claim reports of all serious disabilities, gets in touch with the attending surgeons and discusses by telephone any cases in which there seem to be difficulties or in which the length of disability seems unusual. It encourages attending surgeons to use the telephone for discussion with our staff on any problem cases or those in which they desire assistance. The main problem now crying for attention is a more serious attempt to prevent the minor injuries from developing into major disabilities.

FEBRUARY 15—AFTERNOON

COMDR. HENRY H. KESSLER (MC), U. S. Navy, Presiding

REHABILITATION AND REEMPLOYMENT OF THE DISABLED

The Present Status of Rehabilitation in the U. S. Army

BRIG. GEN. FRED W. RANKIN, U. S. Army, and MAJOR WALTER E. BARTON, M. C., A. U. S.: This paper appears in full in this issue, page 256.

Vocational Training and Placement of the Veteran

MR. C. E. HOSTETLER, Hines, Ill.: This paper appears in full in this issue, page 258.

State Plans for Rehabilitation

MR. MICHAEL J. SHORTLEY, Washington, D. C.: This paper appears in full in this issue, page 263.

The Place of the Compensation Insurance Carrier in the Field of Rehabilitation and Reemployment of Disabled Servicemen

MR. B. E. KUECHLE, Wausau, Wis.: It is a recognized principle of rehabilitation applying equally to disabled servicemen and to disabled industrial workers that rehabilitation and retraining can best be accomplished in a former or related occupation, preferably in the service of the same employer. There is an impression that compensation insurers counsel against the employment of disabled persons, fearing that accident frequencies and accident severity among the disabled will produce adverse loss ratios. Is there any foundation on which these impressions may be based? The answer is a decided "no." Compensation insurance rates are based on nationwide experience modified by law variations in the individual states. Rates are adjusted annually and follow the actual experience by only two years. Therefore rates would promptly correct adverse experience if it did occur.

What are the facts about accident frequency and increased severity among the disabled? Authentic statistics probably will never be available because comparative studies involving similar hazards and equal man-hours of exposure as between disabled and nondisabled workers cannot be carried out. The better judgment of safety engineers and actuaries who have investigated the problem supports the view that accident frequencies among the disabled are about 5 per cent less than among the able bodied in similar occupations. Careful investigations have revealed many observations which make the handicapped not only a heretofore neglected source of manpower but, even more so, a steadying moral influence on physically normal fellow employees. Such persons are likely to be more careful in their movements than the others. If their disability is due to a prior accident, they have learned the lesson of safety the

hard way. They are grateful for the opportunity that has been given them and are eager to prove their loyalty by making good. They concentrate on their tasks, and the absentee problem is less acute than with the able bodied.

Second injury fund legislation, now found in nineteen states, should be extended nationwide to spread the compensation costs of isolated second injuries among the disabled over the entire industry. Medical preplacement examinations are a prime requirement because real vocational rehabilitation is determined solely by the question of whether the prospective employee under the handicap disclosed by such examination will be able to do his new job efficiently and safely; safely to himself, his fellow workers and the public.

Current Developments Affecting the Physician's Role in Manpower Utilization

DR. CLIFFORD KUH, Oakland, Calif., and BERT HANMAN, San Francisco: This paper appears in full in this issue, page 265.

Community Organization for Rehabilitation and Reemployment

DR. HAROLD VONACHEN, Peoria, Ill.: At the Caterpillar Tractor Company plant two years ago we realized that 4,000 to 5,000 people would be coming back to us from the service. We also realized that we had told these individuals that they would have jobs on their return. We decided to develop a program of human rehabilitation. A survey was made through every supervisor in our organization of the 20,000 existing jobs to determine those adaptable to certain handicaps. After we had completed that survey and with the experience that we had over a period of twenty-five years in the rehabilitation of our own employees, we started to hire handicapped persons. We employed 750 and kept records on them. The absentee record, the safety record and the production record of these handicapped individuals are above normal. We pay them the same rate of pay. We show no special consideration whatever. They work the second and third shifts as well as normal persons. They have a job to do and they do it well.

We employ 715 people today who have returned from military service. Some are overage, some had medical discharges, others had been injured in action.

The sooner industry begins to prepare for this job on a large scale the better off it will be.

FEBRUARY 16—AFTERNOON

DR. CLOSE HESSELTINE, Chicago, Presiding

WOMEN IN INDUSTRY

Report of the Committee on the Health of Women in Industry

DR. H. CLOSE HESSELTINE, Chicago: At the annual meeting of the American Medical Association in June 1942 the House of Delegates and the Section on Obstetrics and Gynecology each passed a resolution to establish a Committee on the Health of Women in Industry of the Section on Obstetrics and Gynecology. The function of this committee was advisory in nature, particularly to the Council on Industrial Health of the American Medical Association. A committee was appointed consisting of Dr. Max Burnell, Flint, Mich.; Dr. Jennings C. Litzenberg, Minneapolis; Dr. Goodrich C. Schauffler, Portland, Ore.; Dr. Robert E. Seibels, Columbia, S. C.; Dr. Louis Phaneuf, Boston, chairman of the section; Dr. Philip F. Williams, Philadelphia, secretary of the section, and Dr. H. Close Hesseltnine, Chicago, chairman.

There is considerable controversy between industrial physicians and obstetricians and gynecologists as to the nature of the obstetric and gynecologic problems of women in industry. The committee unanimously has recommended that a pre-employment pelvic examination should be a routine to evaluate the pelvis for major conditions, as tumors or prolapse. Obviously, where a vaginal examination was not feasible, a rectal examination would suffice. These findings, as all other medical findings, should be confidential, and the purpose of the examination should be for the protection of the prospective employee as well as for the protection of the employer. The findings should be of value in job placement. Furthermore, findings prior to employment may be particularly desirable and

helpful subsequently in the event of medicolegal action. Pregnancies and their complications, dysmenorrhea, menopausal disturbance, sterility and gynecologic states in general should be managed by the employee's personal physician or obstetrician and gynecologist. Ordinarily, obstetric or gynecologic diseases are not attributed to employment. Subsequent study should reveal whether any types of employment, particularly where there is inadequate protection and safeguards, may produce complications or conditions of obstetric or gynecologic nature. It will be necessary also to determine whether or not there are any types of employment or working conditions which may aggravate existing obstetric or gynecologic ill health.

In December 1943 the United States Bureau of Census estimated that 16,800,000 women of 14 years and over were employed. This number of women is about 30 per cent of the total population (52,000,000) for the same age period.

Protection for Industrial Women—Progress and Prospects

MISS MARY ANDERSON, Washington, D. C.: Laws designed specifically for the protection of women cover such conditions as hours of work, night work, prohibited occupations, rest and lunch periods and plant facilities—seats, wash rooms and rest rooms. From 1874 on there was a slowly growing interest in establishing legislation about hours of work for women. Today the eight hour day and forty-eight hour week represent the standard recommended by nine of the most vitally important agencies of the federal government. Laws prohibiting employment of women on the night shift in factories had been enacted in eight states by 1918; by 1940, four more states were included in this group. The Fair Labor Standards Act, though not establishing the eight hour day, puts a premium on restricting weekly hours to forty by requiring the payment of overtime for hours worked in excess of forty. Applying to all workers in manufacturing and certain other establishments that do business in interstate commerce this law, though setting no actual limit, has had some influence in preventing excessive weekly hours for women.

In a summary of legislation enacted for the protection of working women since 1918, minimum wage laws must be noted. From twelve states in 1918 their number has risen to twenty-five by 1940. In 1918 the laws of eighteen states required rest periods and time for meals for manufacturing occupations in which women were employed. In 1940 twenty-one states had such laws. One day's rest in seven was provided for women in manufacturing establishments in the laws of twelve states in 1918 and of twenty-one states in 1940.

Since the outbreak of war a considerable number of states have passed emergency acts specifically authorizing the governor or the commissioner of labor to permit relaxation of labor laws. The situation now existing in some states we consider quite serious in view of the mounting evidence of overlong hours in terms of absence rates and turnover. Five major industrial states provide no maximum limit to daily or weekly hours. Attention to labor legislation in the war years has not been altogether on the unfavorable side. Eleven states have raised minimum wage standards for at least part of the employed women in their jurisdictions since the United States entered the war.

Industrial medicine and industrial hygiene have made great strides since the first war. More adequate medical and nursing staffs, enlarged facilities and better equipment in many factories and other war establishments are noteworthy developments. The outstanding contributions of the United States Public Health Service have encouraged and given impetus to studies undertaken by industrial physicians. We are more willing to recognize the need for protection against conditions that lead to fatigue or illness—protection against conditions that diminish the women's capacity to maintain efficient production, to say nothing of the permanent effect these conditions might have on their health. We are finding a decided change in attitude on the part of employers in greater effort toward adjusting conditions in the plant to accommodate women's needs, which show up in higher production, fewer accidents and less turnover. I refer especially to more general observance of rest periods, provision for seating, time for meals, and adequate wash room and rest room facilities. Progress is apparent in engineering jobs to

make them more suitable for the employment of women. Installation of labor saving devices and protective equipment has opened new jobs to women without exposing them to unnecessary hazards. The new administrative group in industry—the woman counselors—has become of immense importance in acquainting management with both the capacities and the limitations of women workers and in giving assistance of various kinds to the new and inexperienced woman.

I cannot urge too strongly the need for much more information than seems to exist at present on health problems of employed women, not only to meet definite situations now, but for the future. Women who will be at work in 1950 may number 17 million, compared with the 13 million employed in 1940, and a larger proportion of these women will be middle aged; in fact, the age group among employed women expected to register the largest increase in 1950 over 1940 will be women in their fifties.

Why Do Women Stay Away from Work?

DR. C. O. SAPPINGTON, Chicago: There is great difficulty in getting statistical data on the subject "Why Do Women Stay Away from Work?" Few plants have any data; few medical departments have it; few personnel departments have it. There is no standard method of recording the data. Our composite experience with 50,000 employed women in war industry gives the following percentage range of reasons for "separations": 20 per cent, change of residence (that is the average percentage in this range); marriage, 14; personal, 13; family problems, 12; industrial (due to the job, that is), 12; incompetence, 11; nonindustrial disability, 10; family disability, 7; reduction of force, 5; community problems, 3; other jobs, 2.

The ratio of days lost in this organization was as two in men to three in women, and the total time lost due to female disorders was $4\frac{1}{2}$ hours per thousand annually. Employment separations of women show great variations in different establishments. Women have long shown significantly higher rates than men for separations due to respiratory and digestive complaints as well as other nonindustrial diseases. The reasons appear to be psychologic, rather than physiologic. Women are by nature more conservative of health, of personal health. Most people who have had experience with women will agree that they leave work sooner and will take better care of themselves than men. Judged by representative available data, lost time due to female disorders rates low in the scale of causes of separation from employment. The chief causes of separations apparently represent problems of social and economic adjustment. Although medicine, management and the community can aid materially, these problems are, in the final analysis—or appear to be—the personal responsibilities of the individual.

A Practical Health Program for Women in Industry

DR. FRED B. WISHARD, Anderson, Ind.: When the employment of women is contemplated, the plant should be cleaned up, the walls painted, adequate lighting fixtures installed and a good housekeeping program inaugurated. Noise should be reduced to a minimum, ventilation regulated and the jobs located where there are no extremes in temperature, such as adjacent to ovens or near service doors. Rest rooms should be provided with adequate toilet facilities. Each job should be surveyed and broken down into simple individual steps so that no one operation requires any great amount of mechanical skill. All excessive lifting should be eliminated so that the woman is not required to handle objects weighing in excess of from 15 to 20 pounds, avoiding any great amount of stooping or bending, as these movements tend to produce fatigue and muscle strain. The operator should be able to sit or stand at will. It is recommended that conveyor systems be installed whenever possible to eliminate carrying or if not practical, long tables may be used, along which the work is pushed. The height of the table affects efficiency, particularly when an operator is required to work at tables of different levels. Tall women working at low tables will develop back troubles, and if platforms are provided for short women to stand on these platforms constitute a safety hazard particularly where chairs are used, so it is better to segregate the women as to height.

In my experience there is no such thing as a "factory type woman," unless it means reasonable intelligence, fairly good health and a willingness to work. The U. S. Women's Bureau lists three general types of work for which women are particularly suited: (1) work requiring care and constant alertness, (2) work requiring manual dexterity and (3) work requiring skill but little physical exertion. There are three general ways in which applicants are checked: (1) special aptitude tests, (2) oral tests and (3) interview by a trained interviewer. Many employers insist on an eighth grade education, which assures sufficient intelligence to learn rapidly. Women with higher education become more quickly dissatisfied with routine, repetitive motions. The examining physician must be reasonably familiar with the various types of jobs in the industry for which he is examining applicants in order to make suitable recommendations for job placement. A six day week of eight hours per day appears to be the best working schedule for sustained efficiency.

Opinions vary about the matter of night shifts. Some women prefer these shifts because there is less noise and confusion and it gives them some time during the working day in which to shop. Where a husband and wife are both employed, it is generally better for them to be working the same shift. In some cases they prefer different shifts in order that one parent may be at home with the children. Many states have specific laws pertaining to the use of women on night shifts, and it would be well to be conversant with the statutes relative to this matter.

Swing shifts have certain advantages. The employees alternate working hours and are not kept on night turn for long periods of time. They have certain drawbacks, the most important of which is the fact that whenever the shift is changed the employee must readapt herself to the change in hours, particularly with reference to sleeping habits. It is not well to change shifts more frequently than every three months.

A woman should not try to work after the fifth month of pregnancy, because she has become less agile and more liable to falls and physical injury. Some young women whose husbands are in the military service are much better off physically, emotionally and economically when employed. A pregnant woman is more susceptible to industrial poisoning, presumably because her metabolism is accelerated by her condition. This should be considered in placing her on a job in which she comes in contact with chlorinated hydrocarbons, degreasing compounds and particularly lead. An employer can rule that all pregnant women shall quit as soon as their condition is determined, or he can decide each case on its own merits. It is best to make the wearing of a standard uniform a requisite of employment. This task will be much easier if the uniform is reasonably attractive. Twenty-six states have no laws forbidding the employment of women in specific occupations. Practically all prohibit their employment under detrimental conditions, which are interpreted as meaning those which would unfavorably affect their morals or potential capacity for motherhood.

DOCTORS AT WAR

Radio broadcasts of Doctors at War by the American Medical Association in cooperation with the National Broadcasting Company and the Medical Department of the United States Army and the United States Navy are on the air each Saturday (3:30 Central war time, 2:30 Mountain war time and 1:30 Pacific war time).

The titles and guest speakers for the next three programs are as follows:

May 27. "Fatal Mistakes."

Speaker, Forrest E. Long, M.D., Director, School and College Safety Division, National Safety Council.

June 3. "Medicine in the Front Lines."

Speaker, Major Gen. George F. Lull, U. S. Army, Deputy Surgeon General, Washington, D. C.

June 10. "Frontiers of Medicine."

Speaker, Morris Fishbein, M.D., Editor of THE JOURNAL of Hygiene.

MINNESOTA

Health Education in the Schools.—Minnesota schools are instituting a plan of regular health inspections, based on a program of Mr. Dean M. Schweickhard, Minneapolis, the new commissioner of state education. Part of the program is enlisting the aid of teachers and school nurses in making regular health examinations of their classes, these examinations to look for common indications of illness, physical defects or maladjustments and to report them to the family physician.

Cancer in Men.—The Minnesota Society for the Control of Cancer and Hennepin County Medical Society sponsored a symposium on "Cancer in Men" at a meeting in Minneapolis, April 4. The meeting was promoted by a committee of laymen. Speakers were Dr. Henry E. Michelson on "Cancer of the Skin"; Dr. Leo G. Rigler, "Cancer of the Stomach"; Dr. Ernest L. Meland, "Cancer of the Prostate"; John J. Bittner, Ph.D., "Cancer Research," and Dr. Mauriee B. Visseher and Dr. William A. O'Brien, discussed research, diagnosis and treatment; all are of Minneapolis.

Personal.—Dr. Walter P. Gardner, superintendent of the Anoka State Hospital at Anoka, has resigned to return to private practice; he will enter a partnership with Dr. William H. Hengstler, St. Paul. —Dr. Emanuel S. Lippman, formerly a major in the medical corps of the Army of the United States, who has received a medical discharge, has resumed practice in Minneapolis. —Dr. John H. Remington, Rochester, has received the Paine Company Award of \$100 from the Rochester Academy of Medicine for his paper "Amino Acid Alimentation."

Special Society Elections.—New officers of the Minneapolis Academy of Medicine include Drs. Ernest R. Anderson and Jay C. Davis, who will assume their offices of president and vice president, respectively, next autumn. Drs. Cyrus O. Hansen is secretary and Thomas J. Kinsella treasurer. —At a meeting of the Minneapolis Surgical Society recently Dr. Daniel A. MacDonald was chosen president, succeeding Dr. Herman O. McPheeters. Other officers include Drs. Robert F. McGandy, vice president, and John M. Feeney, secretary. —Dr. Francis E. Harrington, health commissioner of Minneapolis, is the new president of the Minnesota Public Health Association, succeeding Dr. Sidney A. Slater, Worthington.

NEW YORK

State Medical Election.—Dr. Edward R. Cunniffe, New York, formerly president of the Bronx County Medical Society, was chosen president-elect of the Medical Society of the State of New York, and Dr. Herbert H. Bauekus, Buffalo, was inducted into the presidency. Dr. Scott Lord Smith, Poughkeepsie, was elected second vice president. All other officers were reelected.

Dr. Barlow Resigns at Winthrop Company.—Dr. Orpheus W. Barlow, since 1936 associated with Winthrop Chemical Company, Rensselaer, has resigned as chief pharmacologist. Dr. Barlow, before joining Winthrop, was instructor in pharmacology at Western Reserve University School of Medicine, Cleveland. A farewell dinner was given in his honor May 11 at the De Witt Clinton Hotel, Albany.

State Society Approves Medical Plan.—The Medical Society of the State of New York on May 8 authorized the creation of a full time bureau to arrange for a statewide plan of voluntary health insurance which it could direct and control, newspapers report. The society also unanimously endorsed the merger of two nonprofit groups in this field in the New York metropolitan area. The combined groups are Community Medical Care, Inc., a medical insurance affiliate of the Associated Hospital Service, which has 43,000 subscribers, and the Medical Expense Fund of New York, Inc., with 1,200 subscribers. The new group will be known as United Medical Services.

New York City

The Adam Miller Memorial Lecture.—"Calcific Aortic Stenosis" was the title of the Adam M. Miller Memorial Lecture presented by Dr. Howard T. Karsner, Cleveland, May 12. The lecture was given under the auspices of the Long Island College of Medicine, Brooklyn.

Osteomyelitis Patients Wanted for Treatment with Penicillin.—The Hospital for Joint Diseases invites the admission of patients with acute and chronic osteomyelitis for treatment with penicillin. Persons interested are asked to contact the admitting office of the hospital, Madison Avenue and 123d Street, New York 35.

New Head of Pharmacology Department at Columbia.—Dr. Harry B. Van Dyke, director of the division of pharmacology of the Squibb Institute of Medical Research, New Brunswick, N. J., has been appointed professor and head of the department of pharmacology at Columbia University College of Physicians and Surgeons, New York.

Doctors Hospital Tax Exempt.—The appellate division of the supreme court on May 12 ruled that Doctors Hospital, East End Avenue and 87th Street, was a hospital under the law and entitled to tax exemption on its property there. The decision reversed one made in 1941 that upheld the report of a referee that the hospital offered services only to a limited number and its free service was not sufficient to entitle it to tax exemption.

New Director of Henry Street Nursing Service.—Miss Marian G. Randall, from 1938 to 1941 assistant director of the Henry Street Visiting Nurse Service of New York in charge of records and statistics, has been appointed director of the service, effective June 1. Miss Elisabeth C. Phillips, acting director, will resume her former position as assistant director. The Henry Street Visiting Nurse Service, which was founded in 1893 by the late Miss Lillian D. Wald, is said to be the largest service of its kind in the United States.

Memorial Hospital Observes Sixtieth Anniversary.—Memorial Hospital for the Treatment of Cancer and Allied Diseases, 444 East 68th Street, observed its sixtieth anniversary on May 6. It was originally known as the New York Cancer Hospital, and its cornerstone was laid May 17, 1884. The hospital was formally opened Dec. 6, 1887. From its beginning Memorial Hospital gave particular attention to the study of cancer, this work being given impetus in 1902, when a gift of \$100,000 by Mrs. Collis P. Huntington created the Collis P. Huntington Fund for Cancer Research.

Foundation Gives Mayor's Health Plan \$150,000.—The New York Foundation has agreed to underwrite \$150,000 of the \$250,000 required to launch the health plan proposed by Mayor Fiorello H. La Guardia recently (*THE JOURNAL*, May 13, p. 161). The plan is presumably to cover all persons living or working in New York City and earning up to \$5,000 a year. The preliminary studies, made by a special committee named by the mayor, were said to be financed by the New York Foundation and the Josiah Macy Jr. Foundation. According to the *New York Times*, May 15, the incorporation papers for the nonprofit organization that is to operate the plan will be filed within a week or two. David M. Heyman, president of the foundation, was chairman of the committee that submitted the health and medical insurance plan to the mayor. The New York Foundation, 61 Broadway, was established in 1909 with an initial endowment by Alfred M. Heinsheimer, New York, and operates in the fields of medical science, social welfare and education.

Portrait of Dr. Friesner.—On April 27 a portrait of Dr. Isidore Friesner, formerly president of the medical board of Mount Sinai Hospital and consulting otologist to the hospital, was presented to the hospital in commemoration of Dr. Friesner's seventieth birthday. The portrait has been commissioned as a tribute to Dr. Friesner's twenty-four years of service at Mount Sinai and to his pioneering work in establishing the relation of otology to general medicine. Dr. Friesner graduated at the Gross Medical College, Denver, in 1901. In 1921, a year after he joined the Mount Sinai staff, he became otologist. He was president of the medical board from 1927 to 1938. Under his direction of the department of otology, the training of residents in this field was started at the hospital. Dr. Friesner was one of the first to recognize the importance of microscopic studies in diseases of the ear and was responsible for the establishment at the hospital of a histopathologic department and laboratory facilities in connection with otology in 1928.

NORTH CAROLINA

Changes in Faculty at Bowman Gray.—Dr. George T. Harrell Jr., associate professor of internal medicine at Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, has been appointed director of the department, filling the vacancy that occurred when Dr. Tinsley R. Harrison accepted a position as dean of Southwestern Medical College of the Southwestern Medical Foundation, Dallas. Dr. William M. Govier, assistant professor, has been appointed director of the department of pharmacology and Dr. James C. Pass Fearrington, associate in clinical medicine, to associate professor in clinical medicine. According to Dr. Coy C. Carpenter, dean of the medical school, a \$2,500,000 program of expansion has been approved for the North Carolina Baptist Hospital, Winston-Salem.

OREGON

Changes in Health Officers.—Dr. Cecil W. McCain has been appointed health officer of Hood River County to succeed the late Dr. Claude C. Chick.—Dr. Wayne S. Ramsey, Portland, has been appointed Deschutes County health officer with headquarters in Bend.

PENNSYLVANIA

Physician a Nonagenarian.—Dr. James S. Louthan, Beaver Falls, celebrated his ninetieth birthday April 28 by holding office hours as usual, newspapers reported. Dr. Louthan has been practicing since 1882. He has been physician for the Pittsburgh and Lake Erie Railroad since 1892.

Philadelphia

Incidence of Malaria.—Nine cases of malarial fever were reported in the first week to the Philadelphia department of public health, according to the *Philadelphia Inquirer*. Not a single case of the disease was reported during 1943. Of the 105 cases listed so far this year by the health department, virtually all are soldiers, sailors, marines and other members of the armed services returned from duty in the Southwest Pacific, it was stated.

Union Medical Center Opened.—The Union Medical Center, established at 22d and Locust streets by the International Ladies' Garment Workers' Union, was recently dedicated. It is said to be the first of its kind in the state. Dr. Joseph A. Langbord is in charge of the medical staff, which includes Drs. William Bates, Jacob B. Feldman, Samuel Bruck, Joseph M. Fruchter, Frank Walton Burge, Winifred B. Stewart and Catharine Macfarlane.

Schireson Investigation Continues.—In a statement to the press, April 28, Dr. Paul R. Correll, Easton, Pa., newly appointed chairman of the state board of medical education and licensure, said that Dr. Henry J. Schireson will be summoned for a hearing to show cause why his license to practice medicine should not be revoked as soon as the inquiry now being conducted by the state board is completed, perhaps within a month or six weeks (*THE JOURNAL*, May 13, p. 161).

Dr. Mudd Receives Guggenheim Award.—Dr. Stuart Mudd, professor of bacteriology at the University of Pennsylvania School of Medicine, at a dinner at the University of Pennsylvania Club in New York recently was presented with the annual William Guggenheim honor cup for his "outstanding services in the field of blood plasma development, with especial reference to the system now used by the armed forces of the United States in all battle areas." The presentation was made by Edgar B. Landis, president of the New York Club and toastmaster at the dinner. Dr. Mudd in his acceptance speech acknowledged the work of his associate Earl W. Flossdorf, Ph.D., assistant professor of bacteriology at Pennsylvania.

TEXAS

University News.—Dr. Arthur Grollman, research professor of medicine and associate professor of physiology and pharmacology at Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N. C., has been appointed assistant professor of medicine at the Southwestern Medical College of the Southwestern Medical Foundation, Dallas, effective July 1, and Andres Goth, research assistant in pharmacology, Vanderbilt University School of Medicine, Nashville, Tenn., to assistant professor of pharmacology.—Drs. Marvin L. Graves and Walter H. Moursund Sr., Houston, received the honorary degrees of doctor of science and doctor of laws, respectively, from Baylor University during the first commencement exercises since the college of medicine began operations in Houston. Dr. Graves, who is professor emeritus of internal medicine at the University of Texas Medical Branch, Galveston, addressed the commencement on "Pro Bono Publico." Dr. Moursund is dean of the medical school at Baylor.

UTAH

Dr. Charles Johnson Resigns at Utah.—Dr. Charles C. Johnson has resigned as professor and head of the department of pharmacology and physiology at the University of Utah School of Medicine, Salt Lake City. The Salt Lake City *Deseret News* stated that the board of regents adopted a resolution acknowledging Dr. Johnson's many years of service and granting him a one year leave of absence on part time pay, effective July 1. Leo T. Samuels, Ph.D., associate professor of physiologic chemistry, University of Minnesota Medical School, Minneapolis, has been named professor and head of the department of biochemistry at the school, it was reported.

VIRGINIA

Dr. Horsley to Receive Honorary Degree.—Dr. J. Shelton Horsley, surgeon in chief at Saint Elizabeth's Hospital, Richmond, is to be awarded the honorary degree of doctor of science at the next commencement exercises of the Medical College of Virginia, Richmond, September 23.

Dr. Jarrett Goes to Touro Infirmary.—Dr. Lewis E. Jarrett, medical director of Medical College of Virginia, Hospital Division, Richmond, for eleven years, has resigned to accept the position of superintendent of Touro Infirmary, New Orleans, succeeding Dr. Asahel J. Hockett. Dr. Jarrett received his degree in pharmacy at the medical college in 1922 and his degree in medicine in 1932. He became assistant superintendent in 1924 and director in 1933. His resignation will be effective June 1.

GENERAL

Society News.—The Tufts Medical Alumni Association will hold a dinner during the meeting of the American Medical Association at the Palmer House, June 14, at 6:30 p. m. Dr. Harry A. Olin, 6060 Drexel Avenue, Chicago, is local chairman of the dinner. Dr. Harry Blotner, Boston, is secretary of the alumni association.

Association for the Advancement of Science Plans 1944 Session.—The American Association for the Advancement of Science, after two years suspension of meetings, plans to resume its annual meeting, the 1944 session to be held in Cleveland, September 11-16. Hotel headquarters will be the Hotel Statler, while the general program will be held in the Cleveland Public Auditorium. Forest R. Moulton, Sc.D., Smithsonian Institution Building, Washington 25, D. C., is the permanent secretary, and Sam Woodley assistant secretary.

Knudsen Award Goes to Dr. Vonachen.—On May 11 the Knudsen Award of the American Association of Industrial Physicians and Surgeons was presented to Dr. Harold A. Vonachen, medical director of the Caterpillar Tractor Company, Peoria, Ill., for initiating and developing a plan to fit disabled workers to jobs and jobs to disabled workers, started in his own plant two years ago and developed through close cooperation with the medical personnel and safety division and the training and manufacturing department. When the success of the plan at Caterpillar was assured, it was carried forward to the community, where seventeen community organizations are represented on the executive committee of what has now become the Peoria plan for human rehabilitation of civilians and military.

Tri-State Elections.—Dr. Floyd R. N. Carter, South Bend, Ind., was chosen president of the Northern Tri-State Medical Association, including the states of Indiana, Ohio and Michigan. He succeeds Dr. E. Benjamin Gillette, Toledo, Ohio. Other officers include Drs. Fredrick F. Yonkman, Detroit, vice president, Don F. Cameron, Fort Wayne, Ind., treasurer, and Dr. John L. Stiffel, Toledo, secretary.—Dr. George H. Bunch, Columbia, S. C., was chosen president-elect of the Tri-State Medical Association of the Carolinas and Virginia at its annual meeting in Charlotte, N. C., and Dr. Karl B. Pace, Greenville, N. C., was installed as president. Dr. James M. Northington, Charlotte, is the secretary. The 1945 session will be held in Columbia.

Meeting of Genitourinary Surgeons.—The fifty-sixth annual meeting of the American Association of Genito-Urinary Surgeons will be held at the Red Lion Inn, Stockbridge, Mass., June 8-10, under the presidency of Dr. Benjamin S. Barringer, New York. Included among the speakers will be:

- Drs. Charles M. McKenna and Joseph H. Kiefer, Chicago, Unusual Anomalies of the Genital Tract: A Case Report.
- Drs. Clyde L. Deming and Gustaf E. Lundsberg, New Haven, Conn., Papillomatosis of Bladder and Entire Urethra. Infiltrating Cancer of Bladder. Late Pulmonary Metastases. Successful Pneumectomy.
- Drs. Roger C. Graves and Robert S. Thomson, Boston, Total Cystectomy for Carcinoma: Indications and Technique.
- Dr. Gordon S. Foulds, Toronto, Renal Calculus with Parathyroid Adenoma.
- Drs. William F. Braasch and Ruy Goyanna, Rochester, Minn., Hypertension and Its Relation to Renal Ptois.
- Dr. Vincent J. O'Connor, Chicago, Long-Standing Hydronephrosis with Associated Urological Pathology: Interesting Case Report.

Industrial Fatalities.—More than 2 million workers are killed or injured on the production lines of the nation every year, according to a statement by John M. Fewkes, chief of the industrial health and safety section of the War Production Board. Deaths and injuries on the job are occurring at the rate of 270,000,000 lost man-days a year. The wage loss, medical expense and overhead cost of insurance associated with 1942 occupational accidents totaled 1 billion dollars, while the indirect losses, estimated at \$1,300,000,000, bring the total of economic costs of occupational accidents to about \$2,300,000,000.

in this one year. It was stated that industrial accidents from Pearl Harbor to January 1 total 37,600 killed, or 7,500 more than military dead, with 210,000 permanently disabled and 4,500,000 temporarily disabled, or 60 times more than military wounded and missing. Mr. Fewkes stated that injuries account for 10 times as many lost man-hours as strikes. Mr. Fewkes's analysis of the situation was presented at the West Virginia Safety Conference in Charleston, W. Va., recently.

Special Society Elections.—Dr. Roy W. Scott, Cleveland, was recently chosen president of the American Heart Association. Other officers include Drs. Howard F. West, Los Angeles, vice president; Howard B. Sprague, Boston, secretary, and George R. Herrmann, Galveston, Texas, treasurer. —Dr. Alexander W. Lescohier, Parke, Davis & Co., Detroit, was elected president of the American Drug Manufacturers Association at its annual meeting recently. Vice presidents are John S. Zinsser, Sharp & Dohme, Philadelphia, Robert Lincoln McNeil, McNeil Laboratories, Philadelphia, and Carleton H. Palmer, E. R. Squibb & Sons, New York. Donald S. Gilmore, Upjohn, Kalamazoo, Mich., is treasurer and Carson P. Frailey, Albee Building, Washington, D. C., is the secretary. —Dr. Cyril N. H. Long, Yale University School of Medicine, New Haven, Conn., was recently elected president of the American Society for Clinical Investigation. —Dr. Warfield T. Longcope, Baltimore, was elected president of the Association of American Physicians at its annual meeting in Atlantic City, May 9.

More Prescriptions Written in 1943.—The average physician wrote 1,818 prescriptions in 1943 as compared with 1,266 prescriptions written the previous year, according to the fifth annual prescription census recently completed by *Drug Topics* and reported in *Drug Trade News*. The figures represent the total prescriptions filled, minus the refills, from a group of 89,784 physicians reported in private practice in 1943. This group totaled 110,800 in 1942. The report stated that the prescription business last year marked an all time high in the number of prescriptions filled and in dollars. It stated that the prescriptions per capita jumped from 1.66 in 1942 to 1.99 in 1943; prescription dollars per capita rose from 1.69 to \$2.08; the price of the average prescription was \$1.04 in 1943, showing an increase of only 2.9 over 1933. Vitamin prescriptions accounted for 17.5 per cent of all prescriptions filled in 1943. More than 90 million total refills were handled. More than 30 million narcotic prescriptions were filled and more than 40 million vitamin prescriptions were filled. The rate of increase in vitamin prescriptions filled in 1943 was not as great as it was in 1942, yet this type of prescription work has become so large that it now represents 17.5 per cent of all prescriptions.

Orthopedic Meeting.—The fifty-eighth annual session of the American Orthopaedic Association will be held in Hot Springs, Va., June 1-3, under the presidency of Dr. A. Bruce Gill, Philadelphia, with headquarters at the Homestead Hotel. One session will be devoted to various aspects of poliomyelitis, the following speakers participating:

- Dr. John R. Paul, New Haven, Conn., Epidemiology of Poliomyelitis.
- Dr. R. Plato Schwartz, Rochester, N. Y., Recent Experimental Studies of Poliomyelitis.
- Dr. Robert W. Johnson Jr., Baltimore, Results of Modern Methods of Treatment of Poliomyelitis.
- Dr. Ralph K. Ghormley, Rochester, Minn., Abstract of Report of Committee Investigating the Kenny Method of Treatment.

Another session will be devoted to a discussion of "Minimum Requirements for Bone Grafts." Various speakers announced in the preliminary program include:

- Dr. David M. Bosworth, New York, Posterior Approach to the Femur.
- Dr. Le Roy C. Abbott, San Francisco, Surgical Approaches to the Knee Joint.
- Dr. Henry W. Meyerding, Rochester, Minn., Giant Cell Tumors Treated by Excision and Bone Graft.
- Dr. Marius N. Smith-Petersen, Boston, Osteotomy of the Spine.

Surgeon General Norman T. Kirk of the U. S. Army will summarize the various presentations on amputations and front line surgery.

Labor Conference Urges Socialized Medicine.—The International Labor Conference, meeting in Philadelphia, May 11, recommended to its member governments a program "providing for cradle to grave socialized medicine." The recommendation is not binding on member governments, it was pointed out, but speakers expressed the hope that it would be carried forward in the respective countries. According to the New York Times the recommendation on medical care, embracing 114 points to guarantee that medical and dental services, both general and specialized, would be available to all, whether employed or indigent, was adopted by a vote of 55 to 5. Such care would be provided either through social insurance, with a supplementary provision on social assistance

to meet the requirements of needy persons not yet covered by social insurance, or through a public medical service. All care and supplies should be available at any time and without time limit, when and as long as they are needed, subject only to the doctor's judgment and to reasonable limitations as may be imposed by the technical organizations of the service. It was stated that the beneficiary should have the right to "select his family doctor and dentist among the participating general practitioners and subsequently to change his family doctor or dentist, subject to giving notice within a prescribed time, for good reasons, such as lack of personal contact and confidence." The details, as proposed, include "the suggestion that traveling clinics in motor vans or aircraft, equipped for first aid, dental treatment, general examination and possibly other health services such as maternal and infant health services, should be provided for regions with a scattered population."

LATIN AMERICA

Health Activities in Latin America.—Plans for New Medical School at Puerto Rico.—On May 9 Governor R. G. Tugwell approved legislation authorizing the Superior Educational Council to organize a medical school in the University of Puerto Rico and appropriating \$500,000 as an initial contribution toward establishing the school. Jose M. Gallardo, commissioner of education, is reported to have said in a preliminary statement that he knew of no reason why the necessary equipment for the school could not be obtained, pointing out that, since the university already had a complete premedical course, the School of Tropical Medicine, San Juan, might be utilized until facilities are completed at Rio Piedras.

New Health Legislation.—A bill appropriating \$500,000 to establish a Puerto Rico Cancer Institute is now awaiting the signature of Governor Tugwell, it is reported. Dr. Isaac F. Gonzalez Martinez, president of the institute, left Puerto Rico recently to make a study of various cancer institutions in the United States, Mexico, Brazil and Argentina. —Legislation approved May 9 by Governor Tugwell provides \$1,168,400 to establish, operate and maintain centers and rehabilitation institutions for the treatment of venereal diseases, under the supervision of the department of health. Another bill makes it a misdemeanor for any person who knows or has reason to believe he is suffering from a venereal disease not to submit to a "licensed physician's treatment within ten days following the day on which he learned of his affliction" or a licensed physician notifies him that the treatment is completed. The bill, further, gives health officers authority to examine any person within their respective jurisdictions who, they believe, "on reasonable ground" has an infectious venereal disease and is likely to infect another person. The suspected person, however, may apply to a magistrate for a restraining order, and no examination shall then be made except on order of the magistrate.

Dr. Houssay's Instituto de Biología y Medicina Experimental.—Dr. Bernardo A. Houssay, formerly professor of physiology, University of Buenos Aires, announces in *Science* that the laboratory which he has organized with the assistance of the Rockefeller Foundation is called Instituto de Biología y Medicina Experimental (*THE JOURNAL*, April 15, p. 1145). The unit is located at Calle Costa Rica 4185, Buenos Aires. Members of his staff include Drs. Eduardo Braun Menéndez, Virgilio G. Foglia, Juan T. Lewis and Oscar Orías. Dr. Houssay had given his personal library to the University of Buenos Aires before his dismissal from the faculty (*THE JOURNAL*, Oct. 30, 1943, p. 570) and states that the new institute is in need of reprints and other scientific literature.

Medical Congress.—The second Pan American Congress of Ophthalmology, planned for Montevideo, Uruguay, November 3, has again been postponed. Dr. Harry S. Gradle, Chicago, president, announces that this action has been taken at the recommendation of the government of Uruguay and the U. S. Department of State. The congress is tentatively planned for the fall of 1945.

Essay Contest.—The Luis Morquio Foundation announces its second contest for the best papers on "education and medicosocial assistance of children of preschool age." The contest closes Sept. 24, 1945. The address of the foundation is Avenida 18 de Julio, Número 1648, Montevideo, Uruguay. The essay should be written in Spanish.

Medical Murals by Rivera.—The unveiling of murals by Diego Rivera, depicting the history of cardiology from the earliest days to the present, was a feature of the recent opening of the Mexico City Institute of Cardiology (*THE JOURNAL*, May 13, p. 163).

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 22, 1944.

"The Indirect War Losses" of Europe

After the last great war it was found that "indirect war losses" greatly exceeded direct casualties. The indirect losses included the children who would have been born but for the war, the children dying in infancy as a result of wartime increased infant mortality and the civilians who died as a result of wartime epidemics and a wartime increase in the general death rate. For the present war the figures are as yet too incomplete to assess fully "the indirect war losses" in occupied Europe. But enough material continues to be collected to give some idea of their appalling extent. In France the birth rate for 1940 and 1941 was 10 per cent below the previous low birth rate. This meant in the two years 120,000 unborn children. The condition in Belgium is worse: 20 per cent below the pre-war level. The Belgian urban population subsists on about one third of the minimum diet prescribed by the League of Nations. The Netherlands, on the other hand, seems to have been spared such great losses.

Nor have the Axis powers escaped. In Rumania the birth rate in 1941 was 15 per cent below the prewar level. Italy in 1941 and 1942 was reduced 13 per cent in its birth rate, and Germany in the three years 1940-1942 was reduced 14 per cent. The German deficiency has now risen to 25 per cent. These are only partial figures. The total of Europe's "unborn children" must now number several millions.

To this loss must be added that due to increased infant mortality. In Germany this was 6 per cent higher in 1940 and 1941 than in the two preceding years. In Belgium the increase was 13 per cent. Tuberculosis takes a great toll of Belgian children. After one winter of German occupation the deaths from tuberculosis increased 57 per cent and the great majority of the new victims were children. In France the 1940-1942 infant mortality was over 20 per cent increased. In refugee camps children were reduced to 900 calories a day even in 1941. Eight million children were without shoes; 75 per cent of school children lost weight during 1941. They are over a year behind children of normal development. Eighty per cent of French babies suffer from rickets. Nearly all the skin tests performed on Paris children showed tuberculosis definitely. In Italy infant mortality in 1941 was 18 per cent higher than in 1939. In the Netherlands the increase was 20 per cent, though the Dutch are still the best off in occupied Europe. The infant mortality is the only numerical measure available for health trends. But, as the International Labor Office points out in its report, the brunt of deterioration in diet is borne by adolescent children, who are especially susceptible to tuberculosis. The average town child in occupied Europe is underfed, short of vitamins and too hungry to concentrate. The father may be dead, a prisoner of war or a deportee, and the child may spend the day in search of food, too weak for exertion, without soap to keep clean. It is on this decimated enfeebled generation that the reconstruction of Europe will depend.

Stray scraps of news throw light on the terrible conditions. Bread is "diluted" with hydrolyzed straw or chestnut meal from which the oil has been extracted. Last year in France the average family got fish once in three months. The French "national coffee" may contain the crushed seeds of tomatoes, blue lupins, apples, pears, grapes and berries, not to mention acorns and waste from artichokes after the spirit has been extracted. The Dutch are eating dog and cat meat. In Greece, Poland and occupied Russia the conditions are much worse. Bread, of sorts, is the only food available in Greece; proteins

are almost wholly lacking. In a land ravaged by typhus the Poles subsist on less than a fourth of the minimum requirements of food and the lack of potatoes, their staple, is serious.

Failure of the Defense of Schizophrenia in a Criminal Case

A woman aged 47, though the secretary of two colliery companies and a magistrate, was sentenced to six years' penal servitude for theft of \$495,000, falsification of accounts and forgery. She indulged in no vices on which money could have been spent. She had no men friends. The money went in extravagance and playing the lady bountiful. A psychological defense was attempted. Two psychiatrists gave evidence that she had a "split mind": that she had been in a psychoneurotic state for several years. Thus she really had two personalities. This caused the judge to exclaim "Am I trying one or two persons?" To establish the claim for the verdict "guilty but insane" it had to be shown that at the time she committed the crime she was laboring under a defect of reason from a diseased mind so as not to know the nature of the act she was doing or, if she did know it, she did not know that it was wrong. Her lawyer said that if the jury had any idea that the psychiatrists were talking nonsense it would have been easy for the prosecution to produce a superior or equal weight of scientific evidence.

The judge, in summing up, said that he could conceive a suggestion that such cases should be tried by psychiatrists, but that was not the law. If the jury agreed with the psychiatrists they would probably think with them that this was a unique case. It would be historic if some one responsible for diverting the funds of the companies for which she was responsible for a period of seven years or longer to the amount of nearly \$500,000 was not really responsible for it. But the jury might think that it showed great nerve, audacity and clear-headedness to produce a state of affairs in which the cash books appeared to balance to the scrutiny of the auditors. She was found guilty, with the result mentioned.

Good Health of the Nation in Spite of the War

The improved health of the nation during the war years reported in previous letters to *THE JOURNAL* continues. At a press conference Sir Wilson Jameson, chief medical officer of the Ministry of Health, said that as far as could be judged from vital statistics our population as a whole was standing up extraordinarily well to the war effort. Early last November signs of influenza began to show themselves, and in the week ended November 20 there were more than 100 deaths from influenza in the 126 large cities of England and Wales. The figures rose until in the two weeks ended November 20 there were over a thousand deaths. This was the only influenza epidemic in the war years. The last comparable epidemic was in 1936-1937. The recent epidemic petered out two weeks earlier than that one.

American Army Doctors and Nurses Help in the Treatment of British Civilians

Owing to demands of the fighting forces for medical officers there is a great shortage of doctors for civil practice. American army doctors and nurses have begun to help in supplying the deficiency while waiting for active employment in their own army. In a hospital at Stockport a surgical ward had to be closed for want of staff. It has been reopened with a staff of American doctors and nurses. American doctors have also attended a number of cases of childbirth.

Smallpox in Britain

A number of cases of smallpox have occurred in the Mount Vernon Hospital near London. They originated from a patient who had recently returned from abroad. Five nurses and another patient were affected. A woman visitor to the hospital also caught the disease and died. This is the first time

since 1942 that smallpox has occurred in London. Smallpox has ceased to be endemic in this country, but cases are imported from abroad and give rise to outbreaks of the disease, which are controlled by vaccination of contacts. A serious outbreak occurred in Glasgow in 1942 from this cause. A ship from Bombay arrived in the Clyde on May 29 when an electrical engineer was found to be suffering from smallpox, which proved fatal. Cases followed in the crew and passengers of the ship and in the general population. The outbreak was brought under control by energetic vaccination.

PALESTINE

(From Our Regular Correspondent)

March 15, 1944.

The Thirteenth Annual Congress of the Jewish Medical Association

The thirteenth annual congress of the Jewish Medical Association took place in Jerusalem on Sept. 14-16, 1943. In its opening session Dr. Sherman, president of the central committee of the association, reminded the members of the various activities undertaken by the association in order to promote the development of medical science, including the arrangement of scientific meetings. He announced that the meeting would again take place in Jerusalem in 1944, exactly thirty years after the first congress in the same town, and that it would deal mainly with the same subject as the first one—trachoma. Dr. M. Rachmilewitz, chairman of the congress, declared that Palestine had now become a haven for many famous doctors from central European countries, who brought with them a great medical tradition. At present the country was experiencing a shortage of doctors, he said, and there was no certainty that there would be new arrivals from Europe. He emphasized the need to hasten the establishment of the faculty of medicine of the Hebrew University in order to afford medical training for the youth of the country.

The scientific program of the congress was divided into two parts, the bigger part being devoted to typhoid and the rest to various other subjects. Typhoid was discussed as a public health problem (Professor Kligler), from a statistical point of view (Prof. R. Baki), especially with regard to its frequency and special problems in Palestine. Fifteen lectures dealt with epidemiologic, laboratory diagnostic and clinical aspects of the disease. A special meeting was devoted to therapeutic problems of the disease, treatments with mandelic acid (Dr. J. Kleeborg), sulfapyridine (Drs. M. Rachmilewitz and K. Braun) and auto-hemotherapy (Dr. E. Rabinovitz) being discussed.

The last day of the congress was devoted to fourteen papers covering various subjects including surgery, gynecology, serology, chemotherapy, parasitology and different aspects of internal medicine.

The Physical Development of the Youth Aliyah

Reviewing the physical development of 7,000 adolescents brought to this country from the most varied parts of Europe during the years 1933-1941, Dr. S. Spiro, medical adviser of the Youth Aliyah in Palestine, recently published some interesting data. A great number of the children, prior to their emigration from Germany, had already been examined by Dr. Spiro, then medical adviser of the Palestine office in Berlin. During the past few years reexaminations were made either by himself or under his supervision.

Jewish adolescents who were to be transplanted from other countries to Palestine were selected—at least before the war—particularly with regard to physical fitness, as it was intended to introduce them into agricultural work. However, not only physical but also mental health had to be taken into consideration in these youngsters, who had scarcely outgrown childhood or were at the age of puberty, as the deep changes imposed on them by the new environment were no negligible factor.

The inquiry, carried out at twenty different places in Palestine, disclosed that the average age of the children was between 17 and 18½ years, both boys and girls. The average height of the boys was 168 cm., with a weight of 60 Kg. on an average, while of the girls it was 155 cm., with a weight of 60.5 Kg., the girls thus being comparatively short in build. This is particularly evident if we compare the data with those recorded by Spiro for German schools (Stuttgart): Of 17-18 year old boys the average height was 161-164 cm., with an average weight of 56-59 Kg., and of girls the height was 160-169 cm., with an average weight of 59 Kg.

While the height of Jewish boys thus differs but slightly from that of German boys, and their average weight is even higher, the Jewish girls are considerably smaller than the German girls, with a comparatively higher average weight. These divergencies must at least to some extent be attributed to life habits and in part to constitutional factors (such as the tendency to obesity in Jewish girls).

No essential difference was found between the adolescent living in communal settlements and those living with private settlers, between the mountains and the plain, between places with high living allowances (daily outlays for food) and those with a moderate standard.

The diseases recorded in this group of children were exactly the same as those occurring in the rest of the population of this country. Special attention was given to mental disturbances, and it was found that among 7,000 adolescents under supervision there were 19 cases of schizophrenia (10 girls and 9 boys) and 9 of epilepsy. Of 40 deaths, 22 were due to disease and 19 to accidents.

In conclusion, Spiro points out that the physical as well as the mental development of Jewish youths transplanted to Palestine by the Youth Aliyah presents an extraordinarily favorable picture. Developmental data of Jewish boys compare favorably with those of German boys of the same age and are often even superior.

Pelger-Huet's Nuclear Anomaly

Dr. L. Nelken described in the *Harefuah* (26, No. 5, 1944) the first cases of Pelger's nuclear anomaly of the leukocytes, found in a Jewish family in Palestine. Six members of the same family in three generations (5 females, 1 male) showed the anomaly. In the first case, suspicion of an aleukemic form of leukemia arose in connection with splenomegaly, till Naegeli diagnosed the anomaly from blood smears sent to Zurich; the second patient was forbidden to work for two months after a slight typhus exanthematicus infection, because the strange blood picture made the physician suspect a persistent infectious process; in the third case an obstinate staphylococcal infection caused an examination of the blood to be made, and in this way the anomaly was discovered. The practical value of recognizing the harmless anomaly, so that serious mistakes in diagnosis and prognosis may be avoided, is stressed.

Marriages

HENRY RIVES COLEMAN CHALMERS, Bethesda, Md., to Miss Mary Elizabeth Anne Yates in Winnsboro, S. C., May 2.

JOHN ROBERTSON PAUL JR., Charleston, S. C., to Miss Carolyn Sue Hadaway of La Grange, Ga., April 12.

IAN MACFARLANE CHESSEY, Chicago, to Miss Lucille J. Edminster of Wyandot, Ill., in Atlanta, Ga., April 22.

OSCAR ALBERTUS ALEXANDER, Darlington, S. C., to Miss Odessa Snowden in Hemingway, April 29.

JAMES THOMAS STOVALL, Jefferson, Ga., to Miss Julia Isabelle Cox of Clarkton, N. C., April 20.

HERBERT X. SPIEGEL, McKeesport, Pa., to Dr. NATALIE SHAINNESS of New York, April 23.

Deaths

William Simpson Elkin @ Atlanta, Ga.; University of Pennsylvania Department of Medicine, Philadelphia, 1882; joined Southern Medical College as demonstrator of anatomy in 1884 and subsequently held various faculty positions in operative surgery, gynecology and obstetrics, pharmacology and as dean through its development to the Emory University School of Medicine, retiring in 1925 with the title of dean emeritus and emeritus professor of obstetrics and gynecology; a charter member and president in 1884 and 1893 of the Fulton County Medical Society; member of the Southern Surgical Association; fellow of the American College of Surgeons; served as consulting gynecologist at the Grady Hospital and visiting gynecologist at the Wesley Memorial Hospital; formerly chief surgeon for the Atlanta, Birmingham and Atlantic Railway, local surgeon for the Louisville and Nashville Railroad and division surgeon for the Nashville, Chattanooga and St. Louis Railway; served as a member of the Selective Service Board of the Eighth and Ninth wards, Atlanta District, during World War I; a trustee of the Georgia Insane Asylum and the Carnegie Library; in 1932 his wife presented his portrait to Emory University; received the degree of doctor of laws from Emory University in 1925 and Centre College, Danville, Ky., in 1929; on the visiting staff in gynecology, Emory University Hospital, where he died, April 24, aged 85, of uremia.

William Turnor Wootton @ Hot Springs National Park, Ark.; University of Maryland School of Medicine, Baltimore, 1899; member of the House of Delegates of the American Medical Association in 1917, 1918 and 1924; past president of the Garland County Medical Society, Hot Springs Academy of Medicine, Medical Association of the Southwest and the Arkansas Medical Society; president and formerly vice president of the Southern Medical Association; member of the U. S. Medical Examining Board of Hot Springs from 1904 to 1908; veteran of the Spanish-American War and the Philippine Insurrection; an original member of the Military Order of the Carabao; member of the medical examining reference board during World War I; member of the executive commission of the U. S. P. H. S. clinic from 1912 to 1935 and member of the clinical staff of the Levi Memorial Hospital from 1935 to 1938; superintendent of the public health service venereal disease hospital in 1936; attending physician, St. Joseph's Hospital, from 1903 to 1938 and lecturer at the Nurses Training School from 1904 to 1916; served as assistant physician at Maryland State Hospital, Catonsville; died in St. Luke's Hospital, St. Louis, May 2, aged 66, of coronary occlusion.

James Conner Attix, Philadelphia; Medico-Chirurgical College of Philadelphia, 1904; also a dentist and a pharmacist; professor of chemistry and toxicology at the Temple University School of Medicine from 1904 to 1935, when he became emeritus professor of toxicology; member of the Medical Society of the State of Pennsylvania, American Medical Association, Philadelphia Roentgen Ray Society and the Philadelphia Clinical Society; x-ray and radio therapist, Samaritan and Garretson hospitals, from 1904 to 1914; for many years chemist, pathologist and bacteriologist at the National Stomach Hospital; served as chemist at the Temple University Hospital; author of "Handbook of Chemistry for Students of Medicine, Pharmacy and Dentistry," published in 1909; invented the Attix sphygmomanometer; died in the Morrell Memorial Hospital, Lakeland, Fla., April 20, aged 74, of bronchopneumonia.

Millen Alexander Nickle @ Clearwater, Fla.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1907; F.R.C.S., Edinburgh, 1918; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; past president of the Pinellas County Medical Society; captain, medical corps, Canadian Expeditionary Forces, during World War I; member of the staff of the Morton F. Plant Hospital, Clearwater; served as examiner for the Florida State Welfare Board; died March 6, aged 63, of coronary thrombosis.

Frederick Lincoln Abbott, Quincy, Mass.; College of Physicians and Surgeons, Boston, 1888; died in Medfield recently, aged 78, of general arteriosclerosis.

William Sherwood Bureher, Beallsville, Ohio; Starling Medical College, Columbus, 1895; served as mayor of Beallsville, president of the board of education and postmaster; died February 11, aged 72, of heart disease.

Wilton Andrews Day @ Delta, Colo.; Northwestern University Medical School, Chicago, 1902; past president of the Delta County Medical Society; on the staff of the Western

Slope Memorial Hospital; died recently, aged 64, of coronary thrombosis.

Fannie Collins Hutchins @ Cleveland; University of Southern California School of Medicine, Los Angeles, 1893; died in the University Hospitals March 13, aged 78, of lobar pneumonia.

Charles E. Jewett, Worthington, Ohio; Ohio Medical University, Columbus, 1896; died February 23, aged 76, of cerebral hemorrhage.

Frederick W. Jones, Girard, Kan.; Barnes Medical College, St. Louis, 1898; member of the Kansas Medical Society; died February 21, aged 72, of heart disease and pneumonia.

Meyer Lippman, Brooklyn; University and Bellevue Hospital Medical College, New York, 1908; member of the Medical Society of the State of New York; associate pediatrician at the Beth-El Hospital; died March 9, aged 59, of coronary thrombosis.

William Louis, Richmond Hill, N. Y.; Eclectic Medical College of the City of New York, 1896; member of the staff of the Prospect Heights Hospital, Brooklyn; died in the Mary Immaculate Hospital, Jamaica, March 29, aged 76, of heart disease.

James Patrick McMurphy, Atmore, Ala.; Medical College of Alabama, Mobile, 1906; member of the Medical Association of the State of Alabama; died March 14, aged 63, of coronary thrombosis.

Robert Milligan, Pittsburgh; Jefferson Medical College of Philadelphia, 1896; member of the Medical Society of the State of Pennsylvania; died recently, aged 75, of cirrhosis of the liver.

William Lowry Milner @ Union Star, Ky.; University of Louisville Medical Department, 1894; also a pharmacist; died March 2, aged 73, of carcinoma of the liver.

John J. Mohrbacher, Newark, N. J.; Eclectic Medical College of the City of New York, 1910; member of the Medical Society of New Jersey; member of the board of education; chairman of draft board number 41; police surgeon; on the staffs of the Irvington General Hospital, Irvington, and St. James and Presbyterian hospitals; died March 23, aged 57, of coronary occlusion.

Lewis Ryan Oatman, Greenwich, N. Y.; Albany Medical College, 1891; member of the Medical Society of the State of New York; past president of the Washington County Medical Society; served as health officer in the town of Easton and as president of the village of Greenwich; an associate member of the staff of the Mary McClellan Hospital, Cambridge, and on the staff of the Samaritan Hospital, Troy; died March 1, aged 76, of arteriosclerosis.

Harris Adair Patterson @ Joliet, Ill.; Rush Medical College, Chicago, 1897; past president of the Will-Grundy Counties Medical Society; served as township physician and county physician; on the staffs of the Silver Cross and St. Joseph's hospitals; died March 13, aged 80, of carcinoma of the bladder.

Russell Haywood Quick @ Toledo, Ohio; Toledo Medical College, 1897; served as a captain in the medical corps of the U. S. Army during World War I; died February 19, aged 69, of coronary occlusion.

John Henry Raach @ Wheaton, Ill.; the Hahnemann Medical College and Hospital, Chicago, 1905; past president of the Du Page County Medical Society; formerly city physician of Wheaton; a director of the Gary-Wheaton Bank; on the staff and trustee of the Elmhurst Community Hospital, Elmhurst, where he died March 13, aged 68, of pulmonary embolism.

Andrew Ludwig Reusing, Akron, Ohio; Cleveland Homeopathic Medical College, 1898; died February 23, aged 72, of heart disease.

Benjamin N. Searcy, Rising Sun, Ind.; Illinois Medical College, Chicago, 1898; died in the Christ Hospital, Cincinnati, March 6, aged 66, of cerebral hemorrhage.

Williams Spieer, Goldsboro, N. C.; Bellevue Hospital Medical College, New York, 1898; at one time owner of Spicer's Sanatorium; on the staff of Goldsboro Hospital; died April 20, aged 66, of tuberculosis.

Marcus Hardin Sutherland, Buchel, Ky.; Kentucky School of Medicine, Louisville, 1897; died February 23, aged 86.

Almer N. Tomlin, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1886; member of the Medical Society of the State of Pennsylvania; died recently, aged 82, of heart disease and asthma.

John Hester Walton, McAllen, Texas; Kentucky School of Medicine, Louisville, 1893; died recently, aged 71, of recurring cerebral hemorrhage.

Correspondence

CATHARTICS PREVIOUS TO ROENTGEN EXAMINATION

To the Editor:—Is it not time to protest against the practice of roentgenologists prescribing strong cathartics preceding an examination of the bowel? In this neighborhood it is apparently the custom to order 3 teaspoons of compound senna (licorice) powder or an ounce of castor oil.

Is it any wonder that a large number of the patients show a picture of irritable or spastic colon? In 2 patients who showed violently active colon and spasms, I have had the barium enema repeated two and three days later and found the colon quiescent and not even suggestive of spastic colon. A number of the better roentgenologists have told me that they are no longer committing themselves to a diagnosis of spastic colon, as it is too common a finding.

But more important is the danger when powerful cathartics are prescribed for patients whose condition is unknown, and without any history being taken. One patient of mine, three months pregnant, was ordered castor oil, but fortunately she called me up about it. Do not the roentgenologists know that castor oil is an abortifacient?

A number of patients with ulcerative colitis and bacillary dysentery have been given compound senna powder, which started a violent and persistent diarrhea. In addition to giving the cathartic, one roentgenologist sent several patients for a colon irrigation as a preliminary to the examination.

In making appointments we always indicate the diagnosis, but in spite of this the routine order for a cathartic is given the patient unless we protest with vigor.

WALTER A. BASTEDO, M.D., New York.

TUMORS OF THE FOOT

To the Editor:—Dr. George Kulchar in an article on "Benign and Malignant Tumors of the Foot" appearing in *THE JOURNAL*, March 18, writes that "many angiomas involute spontaneously, usually over a period of years. Treatment if feasible should, however, be begun as soon as the tumor is discovered." He further writes that "the simple and the cavernous angiomas are easily treated with x-rays or radium, given usually in small and well spaced doses, or by the injection of sclerosing substances. A lesion not responding to these measures may be surgically excised and, if necessary, the defect repaired by a skin graft. Small lesions may be destroyed with solidified carbon dioxide or by electrodesiccation."

Certainly Dr. Kulchar considers the treatment of these simple and cavernous angiomas in the orthodox accepted manner. However, these orthodox ways of treatment should be abandoned entirely. The simple (strawberry) angiomas and the cavernous angiomas have a natural history with which the average physician is unfamiliar. They are present at birth or appear shortly thereafter, grow quite rapidly for a variable time, attain their maximum growth before the age of 1 year, and completely regress before the sixth year of life. No treatment is necessary. The only thing required is patience. The use of x-rays and of radium in the treatment of these benign self-limited lesions should be abandoned entirely, for it introduces the hazards of causing cataracts, disturbances of epiphyseal growth, hemiatrophy of the face from disturbances of growth of the facial bones, and of atrophy of the skin. The unnecessary expense of treatment is not to be overlooked.

I do agree with Dr. Kulchar that there is no satisfactory method of treating the superficial nevus flammeus (port wine stain).

C. RUSSELL ANDERSON, M.D.,
1930 Wilshire Boulevard,
Los Angeles 5.

"PRONE" AND "SUPINE"

To the Editor:—It is surprising the number of physicians and even qualified medical authors who confuse the terms "prone" and "supine." Recently I heard an address by an eminent professor of medicine who said that he catheterized patients in the "prone" position. One of the leading books on treatment, speaking of the heart, says that when a patient suffering heart symptoms is given hypodermic medication he should be in the "prone" position. A recent article in *THE JOURNAL* makes the same error, which the author corrected in later correspondence. In the dictionary prone is defined as "lying flat with the face downward" and supine as "lying on the back."

EDWIN H. SHEPARD, M.D., Syracuse, N. Y.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS
EXAMINING BOARDS IN SPECIALTIES

Examinations of the Examining Boards in Specialties were published in *THE JOURNAL*, May 20, page 229.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Montgomery, Oct. 24-26. Sec., Dr. B. F. Austin, 519 Dexter Ave., Montgomery.

ALASKA: Juneau, September 5. Sec., Dr. W. M. Whitehead, Box 561, Juneau.

ARKANSAS: * *Eclectic*. Little Rock, June 8. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: San Francisco, June 27-29. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

CONNECTICUT: * *Written*. New Haven, July 11-12. *Endorsement*. New Haven, July 25. Sec. to the Board, Dr. Creighton Barker, 258 Church St., New Haven. *Homeopathic*. Derby, July 11-12. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven.

DELAWARE: Dover, Oct. 10-12. Sec., Medical Council of Delaware, Dr. J. S. McDaniel, 229 S. State St., Dover.

FLORIDA: * Jacksonville, June 26-27. Sec., Dr. W. M. Rowlett, Box 786, Tampa.

HAWAII: Honolulu, July 10-13. Sec., Dr. J. A. Morgan, 55 Young Bldg., Honolulu.

IDAHO: Boise, July 11. Dir., Bureau of Occupational Licenses, Mrs. Lela D. Painter, 355 State Capitol Bldg., Boise.

IOWA: * Iowa City, Sept. 25-27. Dir. Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: November. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. Seventh St., Kansas City.

KENTUCKY: Louisville, Sept. 11-12. Sec., State Board of Health, Dr. Philip E. Blackerby, 620 S. Third St., Louisville.

MARYLAND: *Medical*. Baltimore, June 13-16. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic*. Baltimore, June 20-21. Sec. Dr. J. A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, July 11-14. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413-F State House, Boston.

MICHIGAN: * Ann Arbor, July. Sec., Board of Registration in Medicine, Dr. J. E. McIntyre, 100 W. Allegan St., Lansing.

MINNESOTA: * Minneapolis, June 20-22 and Aug. 29-31. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul.

MISSISSIPPI: Jackson, May 29-30. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MISSOURI: St. Louis, August. Sec., State Board of Health, Dr. James Stewart, State Capitol Bldg., Jefferson City.

NEW JERSEY: Trenton, June 20-21. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW YORK: Albany, Buffalo, New York City and Syracuse, June 26-29. Sec., Dr. R. R. Hannon, Education Bldg., Albany.

NORTH CAROLINA: Raleigh, September. Sec., Dr. W. D. James, Hamlet.

NORTH DAKOTA: Grand Forks, July 5-8. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OHIO: *Endorsement*. Columbus, July 4. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: * Oklahoma City, Sept. 16. Sec., Dr. J. D. Osborn, Jr., Frederick.

OREGON: * Portland, July 26-27. Exec. Sec., Miss L. M. Conlee, 608 Failing Bldg., Portland.

PENNSYLVANIA: Harrisburg, July 11-15. Act. Sec., Bureau of Professional Licensing, Department of Public Instruction, Mrs. M. G. Steiner, 358 Education Bldg., Harrisburg.

SOUTH CAROLINA: Columbia, June 26-28. Sec., Dr. N. B. Heyward, 1329 Blandena St., Columbia.

TEXAS: Galveston, June 26-28. Sec., Dr. T. J. Crowe, 918-20 Texas Bank Bldg., Dallas.

VERMONT: Burlington, Sept. 12-14. Sec., Dr. F. J. Lawliss, Richford.

VIRGINIA: Richmond, Sept. 19-22. Sec., Dr. J. W. Preston, 30½ Franklin Rd., Roanoke.

WISCONSIN: Milwaukee, June 27-29. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Cheyenne, June 5-6. Sec., Dr. M. C. Keith, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

COLORADO: Denver, June 7-8. Sec., Dr. E. B. Starks, 1459 Ogden St., Denver.

CONNECTICUT: June 10. Address State Board of Healing Arts, 250 Church St., New Haven 10.

FLORIDA: Gainesville, June 8. Sec., Dr. J. F. Conn, John B. Stetson University, DeLand.

IOWA: Des Moines, July 11. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

MINNESOTA: June 6-7. Sec., Dr. J. C. McKinley, 126 Millard Hall, University of Minnesota, Minneapolis.

NEW MEXICO: Santa Fe, June 12. Sec., Miss Marian M. Rhea, State Capitol Bldg., Santa Fe.

OKLAHOMA: Oklahoma City, July 3. Sec., Dr. J. D. Osborn Jr., Frederick.

OREGON: Corvallis, July 8. Final date for filing application is June 21. Sec., Board of Higher Education, Mr. C. D. Byrne, Eugene.

SOUTH DAKOTA: Vermillion, June 4-5. Sec., Dr. G. M. Evans, Yankton.

TENNESSEE: Nashville and Memphis, June 23-24. Sec., Dr. O. W. Hyman, Memphis.

WISCONSIN: Milwaukee, June 3. Sec., Prof. R. N. Bauer, 152 W. Wisconsin Ave., Milwaukee.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Alleged Improper Treatment of Cirrhosis of the Liver and Nephritis by Chiropractor.—Bruce Deacon submitted to chiropractic treatments from August 1940 to Oct. 23, 1940 from the defendant chiropractor, the treatments from October 2 on being given at the patient's home because of his condition. The chiropractor diagnosed the patient's ailment as cirrhosis of the liver and nephritis, accompanied by "swollen ankles, a labored heart, shortness of breath, high blood pressure, nausea, headaches and ascites." On October 23 Dr. Carlson, "an M.D. 'took the case over'" and had the patient removed to a hospital, where he died December 9. A postmortem disclosed "an early cardiac type of cirrhosis of the liver. And the immediate cause of death was given as 'myocardial hypertrophy with right auricular mural thrombosis.' The nephritis was secondary to the cirrhosis as the cause of heart failure and the esophageal hemorrhage." Subsequently the patient's widow sued the chiropractor, alleging that the chiropractor improperly treated the patient and that his death was hastened thereby. The trial judge, who heard the case without a jury, entered a judgment in favor of the chiropractor, and the widow appealed to the Supreme Court of Michigan.

The sole question to be determined by the Supreme Court was whether or not the plaintiff had established by a preponderance of the evidence the fact that the chiropractor had been negligent and that his negligence had contributed to the death of the patient. There was irreconcilable conflict, said the Supreme Court, between the testimony offered in behalf of the plaintiff and that offered in behalf of the chiropractor. On behalf of the plaintiff there was testimony given by one physician tending to sustain the contention that the chiropractor in treating the patient was guilty of such negligence or misconduct as would entitle the plaintiff to recover damages. On the other hand, however, the attending physician, Dr. Carlson, testified that

nothing was done by the chiropractor in the course of his treatment that was detrimental to the welfare of the patient or in consequence of which it could be said that the chiropractor failed in the performance of his professional duty. The plaintiff apparently contended before the trial court that the chiropractor failed in his duty to recommend that the patient be removed to a hospital, especially after it became apparent that the chiropractor could not successfully treat the patient. The trial court, however, in an opinion it rendered overruling a motion for a new trial, pointed out specifically that Dr. Carlson, the attending physician, had testified that both the patient and the widow, the present plaintiff, had told him, when he first assumed charge of the case, that they were sorry they did not come into the hospital before as the chiropractor had advised them to do. The trial court, after carefully weighing the testimony, came to the conclusion that the widow had not sustained the burden of proof which was essential to her right of recovery, and the Supreme Court agreed with the trial court. The judgment in favor of the chiropractor was accordingly affirmed.—*Deacon v. Jaerling, 13 N. W. (2d) 831 (Mich., 1944).*

Society Proceedings

COMING MEETINGS

American Medical Association, Chicago, June 12-16. Dr. Olin West, 535 N. Dearborn St., Chicago 10, Secretary.

American Academy of Tuberculosis Physicians, Chicago, June 13. Dr. Oscar S. Levin, P. O. Box 7011, Denver, Colo., Secretary.

American Association for the Surgery of Trauma, Chicago, June 9-10. Dr. Gordon M. Morrison, 520 Commonwealth Ave., Boston, Secretary.

American Association of Genito-Urinary Surgeons, Stockbridge, Mass., June 8-10. Dr. Charles C. Higgins, 2020 E. 93d St., Cleveland, Secretary.

American Broncho-Esophagological Association, New York, June 6. Dr. Paul H. Holinger, 700 N. Michigan Ave., Chicago, Secretary.

American College of Allergists, Chicago, June 10-11. Dr. Fred W. Wittich, 401 LaSalle Medical Bldg., Minneapolis 2, Secretary.

American College of Chest Physicians, Chicago, June 10-12. Dr. Paul H. Holinger, 500 N. Dearborn St., Chicago, Secretary.

American Diabetes Association, Chicago, June 11. Dr. Cecil Striker, 630 Vine St., Cincinnati 2, Secretary.

American Federation for Clinical Research, Chicago, June 12-13. Dr. Thomas M. Durant, 3401 N. Broad St., Philadelphia 40, Secretary.

American Gastro-Enterological Association, Chicago, June 12-13. Dr. J. Arnold Barger, 102 Second Ave. S.W., Rochester, Minn., Secretary.

American Gynecological Society, Hershey, Penna., June 19-21. Dr. Howard C. Taylor Jr., 842 Park Ave., New York 21, Secretary.

American Laryngological Association, New York, June 7-8. Dr. Arthur W. Proetz, 3720 Washington Blvd., St. Louis, 8, Secretary.

American Laryngological, Rhinological and Otological Society, New York, June 9-10. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.

American Medical Women's Association, Chicago, June 10-11. Dr. Carroll L. Birch, 2045 Sedgwick St., Chicago, Secretary.

American Ophthalmological Society, Hot Springs, Va., May 29-31. Dr. Walter S. Atkinson, 129 Clinton St., Watertown, N. Y., Secretary.

American Orthopedic Association, Hot Springs, June 1-3. Dr. Charles W. Peabody, 474 Fisher Bldg., Detroit, Secretary.

American Physicians' Art Association, Chicago, June 12-16. Dr. F. H. Redewill, 536 Flood Bldg., San Francisco, Secretary.

American Proctological Society, Chicago, June 11-13. Dr. W. H. Daniel, 1930 Wilshire Blvd., Los Angeles 3, Secretary.

American Society for Research in Psychosomatic Problems, Chicago, June 10-11. Dr. Edwin G. Zabriskie, 115 East 61st St., New York, Secretary.

American Therapeutic Society, Chicago, June 10. Dr. Oscar B. Hunter, 1835 I St. N.W., Washington 6, D. C., Secretary.

American Urological Association, St. Louis, June 19-22. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secretary.

Association for Research in Ophthalmology, Chicago, June 13. Dr. B. F. Payne, School of Aviation Medicine, Randolph Field, Texas, Secretary.

Association for the Study of Internal Secretions, Chicago, June 12-13. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City, Secretary.

Maine Medical Association, Rockland, June 25-27. Dr. Frederick R. Carter, 142 High Street, Portland 3, Secretary.

Society for Investigative Dermatology, Chicago, June 13. Dr. S. W. Becker, 55 E. Washington St., Chicago, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1934 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia 207:281-420 (March) 1944

- *Diagnostic Value of Pancreatic Function Tests in 47 Surgically Treated Cases. L. Bauman and A. O. Whipple, with technical assistance of Miss Edith Bratti and Miss Paullynn Stines.—p. 281.
- Effects on Experimental Tuberculosis of 4,4'-Diaminodiphenylsulfone. W. H. Feldman, H. C. Hinshaw and H. E. Moses.—p. 290
- *Experimental Human Influenza. A. P. Krueger and others.—p. 306.
- Note Recommending Use of Dried Plasma Obtained from Fresh Cadaver Blood. L. A. Erf.—p. 314.
- Electrocardiographic Patterns in Cardiovascular Syphilis. S. L. Cole and Anne Bohning.—p. 317.
- Pathologic Changes in Sulfadiazine Intoxication. E. F. Geever.—p. 331.
- Carcinoma of Nasopharynx. C. M. Thompson and E. L. Grimes.—p. 342.
- *"Drug Fever" Accompanying Second Courses of Sulfathiazole, Sulfadiazine and Sulfapyridine. H. F. Dowling and M. H. Lepper.—p. 349.
- Insulin Resistance: Role of Immunity in Its Production. J. Lerman.—p. 354.
- Use of Glycol Vapors for Bacterial Control in Large Spaces. E. Bigg, B. H. Jennings and S. Fried.—p. 361.
- Inflammability Characteristics of Propylene Glycol and Triethylene Glycol in Liquid and Vapor Form. E. Bigg, B. H. Jennings and S. Fried.—p. 370.
- Thrombophlebitis as Hitherto Unreported Complication of Thiocyanate Therapy of Hypertension. A. Kiffler and A. W. Freireich.—p. 374.
- Acute Meningitis Caused by *Neisseria Persflava*: Case. L. H. Sophian.—p. 376.
- Histoplasmosis (Darling) with Autopsy: Case. S. H. Colvin Jr., I. Gore and M. Peters.—p. 378.
- Hepatorenal Failure in Waterhouse-Friderichsen Syndrome: Clinicopathologic Observations in 2 Cases with Prolonged Survival Periods. B. A. Marangoni and V. C. D'Agati.—p. 385.
- Obstructive Lesions of Main Renal Artery in Relation to Hypertension. C. L. Yuile.—p. 394.

Pancreatic Function Tests.—Bauman and Whipple found that mecholyl injection induces secretion of a relatively concentrated pancreatic juice which is well adapted for ferment determination. Separate aspiration of the stomach is necessary to avoid acidification, which injures the pancreatic ferments. A tube with two lumens is used for this purpose. The authors determined the reaction and ferment concentration of the pancreatic juice of 150 patients with various diseases and with verified pancreatic disease. Functional disturbances of the external secretion of the pancreas may occur without demonstrable microscopic changes in the organ. Painless obstructive jaundice with normal pancreatic ferments favors the diagnosis of carcinoma of the bile duct. In tumor of the ampulla normal ferments may be obtained if the pancreatic duct enters the duodenum separately or if there is an accessory duct of Santorini. Painless obstructive jaundice with diminished or absent ferments favors the diagnosis of carcinoma of the pancreas.

Experimental Human Influenza.—Krueger and his collaborators subjected 24 human volunteers to a fine spray of F-99 egg virus from one to twelve minutes. The men manifested no clinical symptoms of influenza. The failure to produce clinically recognizable infection with the F-99 strain of virus, even with doses several times that employed by the Henles and Stokes, may possibly be due to the extra egg passages through which this virus was carried before inoculation of the test subjects. It is not easily understandable why a virus infective for man after having been passed sixteen times in experimental animals and three times in eggs should, after but four more egg passages, be so innocuous. It may be that virulence alterations of influenza viruses take place in sudden steps rather than by gradual decline. A few passages from one human being to another might bring about the reverse transition,

thereby fulfilling the primary requirement for development of a severe epidemic. The possibility of such an occurrence makes one hesitate to advocate immunization of human beings by means of attenuated virus administered by inhalation. Five A type strains of virus were isolated from 5 suspected cases of influenza by means of direct egg inoculation. Methods using hamsters and mice for direct isolation proved negative on the same samples. One of these strains was used for infection of a second series of volunteers. Of 17 subjects exposed from six to twelve minutes 4 exhibited definite symptoms of influenza and 6 were highly suggestive, while the remainder showed no significant reactions. The blood counts revealed no changes. The 4 definite cases all showed low initial antibody titers. All but 1 of the 17 test subjects showed some antibody rise as a result of the inhalation. The exception had the highest initial antibody titer of the group.

Drug Fever Accompanying Second Courses of Sulfonamides.—Dowling and Lepper analyzed data on patients who had received more than one course of the sulfonamide drugs and who did not develop fever during the first course. Among 144 patients who received a second course of sulfathiazole, sulfadiazine or sulfapyridine, after a varying interval of time had intervened since the first course of the same sulfonamide, 16 (11.1 per cent) developed drug fever. Among 169 patients who received a second course of sulfathiazole, sulfadiazine or sulfapyridine following a first course of another sulfonamide 6 (3.6 per cent) developed drug fever. Among 737 patients who were observed during a single course of therapy with sulfathiazole, sulfadiazine or sulfapyridine 37 (5 per cent) developed febrile reactions. Such reactions were more frequent following a second course of sulfathiazole, as well as during a single course of sulfathiazole, than was the case with sulfadiazine or sulfapyridine. Three to six courses of the same sulfonamide were given to 12 patients, none of whom developed febrile reactions. The authors conclude that, when a second course of a sulfonamide must be given to a patient, regardless of the interval following the first course, another sulfonamide drug should be given.

American Journal of Physiology, Baltimore

141:1-164 (March) 1944. Partial Index

- Effect of Carbon Monoxide on Oxyhemoglobin Dissociation Curve. F. J. W. Roughton and R. C. Darling.—p. 17.
- Comparison of Cardiac and Metabolic Actions of Thyroxine Derivatives and Dinitrophenol in Thyroidectomized Rats. C. P. Leblond and H. E. Hoff.—p. 32.
- Mechanism of Adaptation of Pancreatic Enzymes to Dietary Composition. M. I. Grossman, H. Greengard and A. C. Ivy.—p. 38.
- Arterial, Cerebrospinal and Venous Pressures in Man During Cough and Strain. W. F. Hamilton, R. A. Woodbury and H. T. Harper Jr.—p. 42.
- Changes in Vital Capacity When Body Is Immersed in Water. W. F. Hamilton and J. P. Mayo.—p. 51.
- Experimental Analysis of Nervous Factor in Shock Induced by Muscle Trauma in Normal Dogs. W. W. Swingle, W. Kleinberg, J. W. Renington, W. J. Eversole and R. R. Overman.—p. 54.
- Statistical Analysis of Kneec Jerk. F. E. Emery.—p. 64.
- Relation of Uric Acid Excretion to Blood Lactic Acid in Man. S. T. Michael.—p. 71.
- Possible Mode of Action of Pedicle Jejunal Grafts on Gastric Secretion as Indicated by Changes in pH of Surface of Mucosa of Stomach. W. DeW. Andrus, J. W. Lord Jr. and P. Steffko.—p. 75.
- Histamine in Human Gastric Mucosa. B. Traub, C. F. Code and O. H. Wangenstein.—p. 78.
- Hypoglycemic Effects of Growth Hormone in Fasting Hypophysectomized Rats. W. Marx, V. V. Herring and H. M. Evans.—p. 88.
- Effects of Oral Administration of Thiouracil on Metabolism of Isolated Tissues from Normal and Hyperthyroid Rats. B. J. Jandorf and R. H. Williams.—p. 91.
- Survival of Reflex Contraction and Inhibition During Cord Asphyxiation. A. van Harreveld.—p. 97.
- Effect of Human Plasma on Venopressor Mechanism. L. Gunther and W. R. Mecker.—p. 102.
- Effects of Renin and Angiotonin During Hemorrhagic Hypotension and Shock. S. Middleton.—p. 132.
- Adrenal Cortical Compounds and 1-Ascorbic Acid on Secreting Kidney Tubules in Tissue Culture. R. Chambers and Gladys Cameron.—p. 138.
- *Excretion of Sulfanilamide and Acetylsulfanilamide by Human Kidney. T. A. Loomis, G. F. Koepf and R. S. Hubbard.—p. 158.

Renal Excretion of Sulfanilamide.—Loomis, Koepf and Hubbard made simultaneous clearance tests of sulfanilamide, acetylsulfanilamide and inulin on a series of unselected human subjects. The mean clearance of sulfanilamide was found to be

0.45 time as great as the mean clearance of inulin in 82 determinations. This result was interpreted as meaning that sulfanilamide is excreted by the human kidney by glomerular filtration plus tubular reabsorption. The mean clearance of acetylsulfanilamide was found to be almost identical with that of inulin in 95 determinations. However, in individual cases the clearances of these two compounds were not always identical but the degree of variations of these clearances were nearly the same. The clearances of sulfanilamide, acetylsulfanilamide and inulin were found to be independent of the urine flow.

American Journal of Public Health, New York

34:215-316 (March) 1944

- Food and Nutrition Policy Here and Abroad. F. G. Boudreau.—p. 215.
Vital and Health Statistics in Federal Government. S. D. Collins.—p. 219.
State Support of Industrial Hygiene Services—An Urgent Necessity. W. F. Draper.—p. 224.
Severe Epidemic of Meningococcus Meningitis in Chile, 1941-1942. M. Pizzi.—p. 231.
Postwar Implication of Fluorine and Dental Health: Use of Topically Applied Fluorine. J. W. Knutson and W. D. Armstrong.—p. 239.
Postwar Implications of Fluorine and Dental Health: From Viewpoint of Public Health Dentistry. A. O. Gruebbel.—p. 244.
Correlation of In Vitro Sulfonamide Resistance of Gonococcus with Results of Sulfonamide Therapy. C. M. Carpenter, Helen Ackerman, M. E. Winchester and Jane Whittle.—p. 250.
Proposed Method for Control of Food Utensil Sanitation. W. D. Friedeman and others.—p. 255.
Serologic Relationships Within Poliomyelitis Group of Viruses. C. W. Jungeblut.—p. 259.
Problem of Industrial Noise. P. E. Sabine.—p. 265.
Physician's Confidential Medical Report of Cause of Death. T. J. Duffield.—p. 271.
Role of Public Health Laboratory in Gas Defense. E. W. Scott.—p. 275.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

51:125-266 (Feb.) 1944

- Pneumoconiosis: Story of Dusty Lungs. L. G. Cole.—p. 125.
Aero-Otitis Media: Roentgenologic Study. J. C. Larkin.—p. 178.
*Effect of Roentgen Rays on Joint Effusions in Certain Nonspecific Articular Lesions in Humans, and on Normal Joints of Dogs: Preliminary Report. T. Horwitz and M. A. Dillman.—p. 186.
Stereoscopic Depth Perception. O. V. Batson and Virginia E. Carpenter.—p. 202.
Roentgen Demonstration of Meckel's Diverticulum. M. H. Poppel.—p. 205.
Practical Technique for Roentgen Pelvimetry with New Positioning. A. E. Colcher and W. Sussman.—p. 207.
Cleidocranial Dysostosis. C. G. Lyons and J. G. Sawyer.—p. 215.
*Regression of Bone Metastases from Breast Cancer After Ovarian Sterilization. M. Ritvo and O. S. Peterson Jr.—p. 220.
Roentgen Irradiation in Polycythemia Vera by Multiple Small Doses to Large Areas of Body. L. L. Robbins.—p. 230.

Effect of Roentgen Rays on Joint Effusions.—Horwitz and Dillman used roentgen therapy to control effusions in non-specific synovial lesions involving the knee joint. One knee joint was treated in 3 subjects and both in 3 others. No other joints than the knees were involved in these cases. The etiology could not be definitely ascertained, the onset being gradual and without apparent cause in all of the subjects, with the possible exception of a young patient who had suffered an attack of rheumatic fever prior to the onset of her knee involvement. Diagnosis in 2 cases with recurrent knee effusion was "intermittent hydrarthrosis" and in the 4 cases with continuous effusions was "chronic nonspecific synovitis with effusion." In all cases, previous treatment with repeated aspirations, compression bandages, external fixation and intensive physical therapy and, in 2 cases, nonspecific protein therapy had failed to alter the clinical picture. Roentgen therapy was beneficial in the control of joint effusion and its attendant discomfort in human beings. No immediate and, as yet, no remote deleterious effects have been observed in these cases. The effusion was eliminated in 8 knee joints in 5 patients, and no change was effected on the synovial effusion of the knee joint in the sixth case following an incomplete course of roentgen therapy. Residual asymptomatic synovial thickening has persisted in 3 knee joints of 2 patients and painful synovial thickening in the knee joint of 1 patient. There is, therefore, nothing to suggest that roentgen therapy has served or will serve to affect favorably the progress and ultimate course of the underlying pathologic processes in these cases. The more vulnerable articulations of the extremi-

ties of 6 normal adult dogs treated with much larger doses than have been utilized and found effectual in the human subjects have shown no immediate and, thus far, no remote untoward effects.

Regression of Bone Metastases from Breast Cancer After Ovarian Sterilization.—According to Ritvo and Peterson an extensive literature has accumulated stressing the importance of ovarian sterilization in the treatment of metastatic lesions from cancer of the breast. Local recurrences and deep visceral metastases generally seem to show little or no response after radiation treatment directed to the ovaries. The most satisfactory results are obtained in patients with osseous metastases. Osseous metastases from cancer of the breast may regress or disappear completely after ovarian sterilization. The absence or withdrawal of the ovarian hormone is the important factor in producing the results. In addition to the beneficial effects observed in the bone lesions there may also occur relief of pain, general improvement in the physical and mental status, and prolongation of the patient's period of usefulness. The regression of the osseous metastases prevents pathologic fractures with their resultant deformity and disability. The question as to whether this therapy results in appreciable prolongation of life cannot be definitely answered in the affirmative at present. Routine roentgen sterilization of all patients with cancer of the breast is not advocated, the treatment being recommended when osseous metastases have been demonstrated by roentgen examinations. About one third or more of the patients treated may be expected to show improvement after ovarian sterilization.

American Journal of Surgery, New York

63:301-440 (March) 1944

- Cancer of Lip: Study of 56 Five Year Cases. C. A. Whitcomb.—p. 304.
Diagnostic Value of Blood Studies in Malignancy of Gastrointestinal Tract. H. L. Bolen.—p. 316.
Modified Nonadherent Gauze Pressure Treatment for Burns. W. Marshall and Elena Greenfield.—p. 324.
Combination of Nail and Screw for Fixation of Fractures of Neck of Femur. H. A. Johnston.—p. 329.
*Parenteral Fluid Administration Beneath Fascia Lata. R. K. Finley, J. M. Shaffer and A. Altenberg.—p. 337.
Perineorrhaphy Post Partum versus Perineal Repair: Original Technique. L. Drosin.—p. 344.
Spinal Anesthesia and Severely Wounded. L. Watter.—p. 348.
Fracture of Tibia and Fibula Treated by T and G Bone Plate. R. D. Joldersma and F. L. Macpherson.—p. 352.
Operation for Pilonidal Sinuses. R. W. Hipsley.—p. 357.
Retroperitoneal Mucocele of Appendix: Case Report. W. H. Myers and Ruth F. Rominger.—p. 362.
Lateral Osteotomy: Anatomic Considerations. C. K. Gale.—p. 368.
Cotton Suture Material: Importance of Surgical Principles. B. Word and C. E. Brock.—p. 371.
Pain in Shoulder and Upper Extremity Due to Scalenus Anticus Syndrome. B. Judovich, W. Bates and W. Drayton Jr.—p. 377.

Parenteral Fluid Administration Beneath the Fascia Lata.—Finley and his associates practiced subfascia lata infusions of 1,000 cc. of isotonic solution of sodium chloride or of 5 per cent dextrose solutions in 261 cases, the average time required for the delivery of the solution being fifty-six minutes. In 33 patients the average time for absorption of the same amount of fluid by hypodermoclysis was 167 minutes. The solution appears to be absorbed rapidly, as shown by the excretion of phenolsulfonphthalein dye in the urine. This absorption probably takes place in the extensive loose areolar space and capillary and lymphatic bed just beneath the fascia lata. There is more rapid absorption in elderly patients, probably because of more lax structures. The rate of absorption is not greatly influenced by the state of dehydration. Minimal swelling and pain is associated with this method. Because of the decreased discomfort, increased rate of absorption and unquestionable safety of the method, fluid and electrolyte needs can be replenished several times daily and intravenous solutions can be restricted to transfusions and hypertonic fluids. The surgical patient may be moved in bed frequently, without long periods of immobilization. The technique of insertion on the lateral thigh is simple and, because of the rapidity of absorption, the entire procedure can be left safely in the hands of the nursing staff, with elimination of a large amount of nursing time and care.

American Review of Tuberculosis, New York

49:203-288 (March) 1944

- Control, Duplication and Standardization of Radiographic Chest Technic. W. H. Weidman and J. Kieffer.—p. 203.
- Sanatorium, Superintendent and War. H. S. Willis.—p. 227.
- Mars and Mortality: Influence of War on Death Rates from Various Causes in Different Populations. E. Bogen.—p. 231.
- *Intrabronchial Spread Following Thoracoplasty. M. Weinstein and S. Tyau.—p. 238.
- Ether Anesthesia in Pulmonary Tuberculosis. J. D. Murphy.—p. 251.
- Effect of Pulmonary Tuberculosis on Weight of Heart. G. K. Higgins.—p. 255.
- Miliary Densities Associated with Mitral Stenosis. A. Hurst, S. Bassin and Ida Levine.—p. 276.

Intrabronchial Spread Following Thoracoplasty.—Weinstein and Tyau state that among 198 thoracoplasties there were nineteen postoperative spreads in 14 patients, or an operative incidence of approximately 10 per cent. Four deaths occurred from spreads, giving a mortality of 2 per cent for this complication. Negroes developed spreads more than twice as frequently as white patients. Their spreads were more severe, and the 4 fatalities were confined exclusively to colored patients. Tuberculous spreads involved twice as many contralateral lungs as homolateral lungs. Bilateral spreads occurred in only 4 cases. Selective pneumothorax in the controlled contralateral lung for bilateral disease did not prevent the formation of a spread in that lung after thoracoplasty. The greatest number of spreads occurred, first, in the lower third of the lung, second, in the middle third and, third, in the upper third, where the preoperative disease was most predominant. All patients with mild spreads recovered, while those with severe and bilateral spreads accounted for the 4 postoperative fatalities. Patients with extensive disease and much cavitory exudate are more prone to spread after thoracoplasty. Many patients with extensive disease go through thoracoplasty procedures without any postoperative tuberculous spreads. No single or multiple procedures can always prevent spreads. Maintaining the tracheobronchial tree free from much secretion will help considerably. In this way the airways are kept open and the movement of infected tuberculous exudate throughout the respiratory system is lessened.

Anesthesiology, New York

5:113-224 (March) 1944

- Deaths in Operating Room. R. M. Waters and N. A. Gillespie.—p. 113.
- Anesthesia for Patient in Shock. R. B. Gould.—p. 129.
- Continuous Spinal Anesthesia: Its Usefulness and Technic Involved. E. B. Tuohy.—p. 142.
- *Value of Cyclopropane in Anesthetic Management of Patients with Recent Severe Hemorrhage. S. G. Hershey and E. A. Rovenstine.—p. 149.
- Anesthesia: XII. Studies with Isopropenyl Vinyl Ether (Propethylene Ether) in Man. E. H. Davis and J. C. Krantz Jr.—p. 159.
- Changes of Concentration of Hemoglobin During Anesthesia in Man and in Animals. J. W. Pender and J. S. Lundy.—p. 163.
- Clinical and Laboratory Observations on Use of Curare During Inhalation Anesthesia. S. C. Cullen.—p. 166.
- Atelectasis During Anesthesia. W. H. Cassels and Anita E. Rapoport.—p. 174.
- Studies on Paraldehyde: I. Median Lethal Dose, LD₅₀, of Paraldehyde for Guinea Pigs. F. A. Kay, E. B. Carmichael and G. W. Phillips.—p. 182.
- Bilateral Nasotracheal Intubation for Closed System Anesthesia. R. A. Gordon.—p. 186.

Cyclopropane Anesthesia for Recent Severe Hemorrhage.—Hershey and Rovenstine report the beneficial effect of cyclopropane on the blood pressure and the pulse rate of patients anesthetized soon after a recent severe hemorrhage. In 4 of their patients hemorrhage was the predominant factor in the circulatory depression. They also report experimental studies on animals supporting the clinical impression that cyclopropane anesthesia, if not profound, is not contraindicated during shock from hemorrhage. An improvement in circulation was regularly noted in animals when the drug was given after hemorrhage. There was an increase in the mean arterial blood pressure and pulse pressure, as well as a slowing of the pulse rate. It is suggested that some of the observed effects from cyclopropane may be caused by a parasympathomimetic action.

Archives of Internal Medicine, Chicago

73:113-198 (Feb.) 1944

- Primary Atypical Pneumonia: Report of 125 Cases, with Autopsy Observations in 1 Fatal Case. R. J. Needles and P. D. Gilbert.—p. 113.
- Effects of Unilateral Nephrectomy in Treatment of Hypertension: An Evaluation. W. Sensenbach.—p. 123.
- *New Aid in Control of Hemorrhage in Severe Damage to Liver: Transfusions of Blood Fortified by Administration of Vitamin K to Donors. R. E. Kinsey.—p. 131.
- Fluid Dynamics in Chronic Congestive Heart Failure: Interpretation of Mechanisms Producing Edema, Increased Plasma Volume and Elevated Venous Pressure in Certain Patients with Prolonged Congestive Failure. J. V. Warren and E. A. Stead Jr.—p. 138.
- Electrocardiographic Features Associated with Hyperthyroidism. G. Gordan, M. H. Soley and F. L. Chamberlain.—p. 148.
- Gastroenterology: Review of Literature from July 1942 to July 1943. C. M. Jones.—p. 154.

New Aid in Hemorrhage Due to Damage of Liver.—Kinsey shows that hypoprothrombinemia produced by destruction of liver tissue is not influenced by vitamin K or bile salts. During the past year 663 cases of intrahepatic jaundice have been observed at the Station Hospital at Camp Blanding. Five of the patients had acute yellow atrophy, with the plasma prothrombin reduced to such an extent that severe spontaneous hemorrhages occurred. These patients were given large doses of vitamin K, without response, and large transfusions of whole blood, with minimal changes in the prothrombin and no effect on the bleeding. After the first of these patients died in spite of treatment with menadione and blood transfusions, it was decided to try transfusions of blood fortified by administration of vitamin K to the donors. The evidence obtained indicates that the method may have definite value in preventing immediate "hemorrhagic death" or in controlling hemorrhage until there has been regeneration of sufficient hepatic tissue for essential functions. The maximum elevation of prothrombin in the blood usually occurred within twenty-four hours, but in the instances in which the liver was still badly damaged there was usually a decline during the second twenty-four hours. A striking feature of 1 case was the regularity with which the bleeding ceased between 120 and 140 minutes after transfusion on all occasions. In 2 other cases fortified transfusions, as well as regular transfusions, had no effect on a minute purpuric rash but controlled hemorrhages in the skin and subcutaneous tissues. Determination of the optimum amount of vitamin K and of the period of time required for its utilization by the donor requires further work; 6 to 10 mg. of menadione given intramuscularly during the twenty-four hours before a transfusion will probably work satisfactorily. The evidence suggests that vitamin K stimulates the formation of prothrombin or of one of its precursors in the blood of the donor in abnormally large amounts, which can be utilized by the recipient.

Archives of Neurology and Psychiatry, Chicago

51:213-304 (March) 1944

- Human Pyramidal Tract: IX. Effect of Paralysis Produced by Cerebral Tumors on Axons of Pyramids. A. M. Lassek.—p. 213.
- *Pathologic Features of Herpes Zoster: Note on "Geniculate Herpes." D. Denny-Brown, R. D. Adams and P. J. Fitzgerald.—p. 216.
- Electronarcosis in Animals and in Man. J. P. Frostig, A. van Harreveld, S. Reznick, D. B. Tyler and C. A. G. Wiersma.—p. 232.
- Disintegration and Restoration of Optic Recognition in Visual Agnosia: Analysis of Case. A. Adler.—p. 243.
- Psychopharmacologic Study of Schizophrenia and Depressions: Intravenous Administration of Sodium Amytal and Amphetamine Sulfate Separately and in Various Combinations. J. S. Gottlieb and F. E. Coburn.—p. 260.
- Site of Origin of Fasciculations in Voluntary Muscle. F. M. Forster and B. J. Alpers.—p. 264.
- Tumor of Acoustic Nerve Within Petrous Bone: Operative Removal. L. J. Adelstein and F. M. Anderson.—p. 268.

Pathologic Features of Herpes Zoster.—Denny-Brown and his associates present clinical and pathologic observations on 3 patients with herpes zoster. They stress four histologic appearances which distinguish herpes zoster from other pathologic processes: 1. A ganglionitis characterized by pannecrosis of all or part of the ganglion, with or without hemorrhage and surrounded by intense lymphocytic infiltration. This phenomenon was associated with the eruption of vesicles characteristic of the disease in the corresponding cutaneous segment. 2. A poliomyelitis which closely resembles anterior poliomyelitis but

is distinguished by its unilaterality, segmental localization and greater involvement of the posterior horn, posterior root and dorsal spinal ganglion. 3. A relatively mild, localized leptomeningitis, in which the cellular infiltrate is relatively slight and limited principally to the involved spinal segments and nerve roots. 4. True peripheral mononeuritis seen not only in the nerves distal to the ganglion but in the anterior nerve root both within the meninges and in the portion contiguous to the involved spinal ganglion. These pathologic changes constitute the substratum for the neuralgic pain, the persistent pleocytosis and the local palsies which may attend and follow the zoster infection. The hypothesis of Hunt that the combination of a herpetic eruption in the external auditory meatus and palsy of the facial nerve is due to herpes of the geniculate ganglion has wide acceptance in spite of the absence of pathologic proof. The third case was one of auricular and occipital herpes with palsy of the facial nerve. Here a typical necrotizing ganglionitis (second cervical ganglion) and motor neuritis of the facial nerve without damage to the geniculate ganglion were observed. The phenomena of herpes zoster require more than the ganglionic lesion for their explanation: they depend in part on a poliomyelitis and a motor neuritis. Application of these deductions to the syndrome described by Ramsay Hunt allows an explanation of the facial palsy occurring in the course of cranial herpes zoster without implication of the geniculate ganglion. Analysis reveals that the evidence for geniculate ganglionitis in the "Ramsay Hunt syndrome" is invalid. It is possible that some of the various herpes zoster syndromes with palsy of the facial nerve depend on the concurrent involvement of two or more cranial nerves.

Archives of Physical Therapy, Chicago

25:129-192 (March) 1944

Muscle Contraction, Fatigue and Training: Review of Physiologic Literature. K. Harpuder.—p. 135.

Frostbite. C. W. Bankert.—p. 144.

Reduction of Manpower Loss from Gonorrheal Urethritis by Early Application of Fever-Chemotherapy. K. Phillips and Alice B. Mundorff.—p. 150.

*Complications of Therapeutic Hyperpyrexia. H. S. Etter.—p. 154.

Dialysis in Protracted (Unresolved) Pneumonia. E. W. Fowles.—p. 164.

Complications of Therapeutic Hyperpyrexia.—The use of hyperpyrexia is attended with many actual as well as potential dangers, among others that of hemorrhage. Etter emphasizes the need for administration of oxygen during the fever stage. Extra dextrose may also be needed before the treatment. Despite the widespread use of therapeutic hyperpyrexia with a low mortality rate, the fact should always be remembered that it is a potentially dangerous procedure. When one is in doubt, the patient should be taken out of the cabinet.

Bulletin New York Academy of Medicine, New York

20:135-200 (March) 1944

*Treatment of Lobar Pneumonia and Pneumococcal Empyema with Penicillin. W. S. Tillett, Margaret J. Cambier and J. E. McCormack.—p. 142.

Critical Review of Gastroscopy. E. B. Benedict.—p. 179.

Diagnosis and Treatment of Pneumonia.—p. 190.

Penicillin in Lobar Pneumonia and Pneumococcal Empyema.—Tillett and his associates used penicillin in the treatment of 46 patients with pneumonia. They limited the use of this drug to those who on admission exhibited lobar consolidation and a degree of severity indicating the probable pneumococcal etiology of the infection. Even though therapy was at times instituted before the bacteriologic findings were reported, there were only 3 instances in which the specific cause was undetermined. Penicillin was highly effective in the treatment of pneumococcal pneumonia. Of the 46 patients, 3 died and 39 recovered in a manner indicating the special value of the drug. The response was not clearly defined in 4 patients, 1 of whom probably had primary atypical pneumonia and the other 3 had unrelated underlying pulmonary diseases which prolonged their illness beyond the usual course of pneumonic resolution. Bacteremia, which occurred in 14 of the patients, disappeared in every instance following injections of penicillin. Eight patients with pneumococcal empyema were treated with intrapleural injections of penicillin. In 7 the infection was

eliminated without surgical drainage. Six of them recovered completely with only a restricted area of pleural thickening remaining as a permanent alteration. In 1 patient, who had pyopneumothorax on admission, the pyothorax cleared up satisfactorily but the pneumothorax arising from a bronchopleural fistula which was present before treatment was begun has persisted. In another patient, who was insufficiently treated with penicillin, relapse occurred and surgical drainage was instituted. Reexamination at varying periods revealed that, with the exception of the patient with pneumothorax, the others have remained well and free from symptoms. Strains of pneumococci derived from the empyemal pus of patients whose pneumonia had been previously treated with sulfadiazine were found to possess varying degrees of sulfonamide resistance.

Cancer Research, Baltimore

4:145-208 (March) 1944

Metabolic Studies in Patients with Cancer of Gastrointestinal Tract. XIII: Effect of Glycine on Urinary Excretion of Creatine and Creatinine, Especially by Patients with Cancer of Gastrointestinal Tract. J. C. Abels, Claudia W. Kupel, G. T. Pack and C. P. Rhoads.—p. 145.

Metabolism of Pyruvate by Normal and Leukemic White Cells. J. C. Abels, Florence L. Jones, L. F. Craver and C. P. Rhoads.—p. 149.

Carcinogenicity of p-Dimethylaminoazobenzene in Diets Containing Hydrogenated Coconut Oil. J. A. Miller, B. E. Kline, H. P. Rusch and C. A. Baumann.—p. 153.

Observations on Inherited Susceptibility to Spontaneous Mammary Cancer in Mice. J. J. Bittner.—p. 159.

Chromophobe Adenoma-like Lesions of Rat Hypophysis: Frequency of Spontaneous Lesions and Characteristics of Growth of Homologous Intraocular Transplants. J. A. Saxton Jr. and J. B. Graham.—p. 168.

Carcinoma of Adrenal Cortex in Rabbit. W. C. Hueper and C. T. Ichniowski.—p. 176.

Comparative Antifibromatogenic Activity of Progesterone and Related Artificial Steroids. A. Lipschütz, S. Bruzzone and F. Fuenzalida.—p. 179.

Antifibromatogenic Activity of Synthetic Progesterone in Experiments with 17-Caprylic and Dipropionic Esters of Alpha-Estradiol. A. Lipschütz and J. Grimaldi.—p. 186.

Phenomenon of Local Skin Reactivity to *Serratia marcescens* (B. Prodigiosus): Immunologic Relationships Between *Serratia marcescens* Culture Filtrates and Shear Polysaccharide. G. Schwarzman.—p. 191.

Cancer Congress of Guadalajara (Mexico). F. Duran-Reynals.—p. 197.

Delaware State Medical Journal, Wilmington

16:1-18 (Jan.) 1944

Hypothalamus and Human Emotions. A. J. Fleming.—p. 1.

16:19-34 (Feb.) 1944

Radical Perineal Prostatectomy Subsequent to Bilateral Orchiectomy. B. S. Vaillett.—p. 19.

Immune Serum in Cancer Therapy. L. Levitov.—p. 20.

Marihuana Problem. J. H. Foulger.—p. 24.

Endocrinology, Springfield, Ill.

34:143-214 (March) 1944

Antidiuretic Action of Yohimbine. N. W. Fugo.—p. 143.

Quantitative Aspects of Estrogen Assays. J. M. Curtis, E. Witt and Lila F. Knudsen.—p. 149.

In Vitro Accumulation of Inorganic Iodide by Surviving Thyroid Tissue with Radioactive Iodine as Indicator. H. Schachner, A. L. Franklin and I. L. Chaikoff.—p. 159.

*Effect of Thiouracil and Thiourea on Thyroid Gland of Chick. J. P. Mixner, E. P. Reineke and C. W. Turner.—p. 168.

Micro Method for Separation of 17-Ketosteroids into Alpha and Beta Fractions. Elizabeth G. Frame.—p. 175.

Effects of Adrenalectomy on Activity of Cytochrome Oxidase and Concentration of Cytochrome C in Rats. S. R. Tipton.—p. 181.

Effect of Preventing Acapnia on Adrenal Cortical Hypertrophy Under Conditions of Decreased Barometric Pressure. H. F. Haldeman.—p. 187.

Quantitative Assay of Adrenal Cortical Hormones by Muscle-Work Test in Adrenalectomized-Nephrectomized Rat. D. J. Ingle.—p. 191.

Metabolism of Estrene in Normal and Partially Nephrectomized Rats. J. Schiller and G. Pincus.—p. 203.

No Effect on Adrenal Hypertrophy of Subdiaphragmatic Vagotomy Under Conditions of Decreased Barometric Pressure. H. F. Haldeman.—p. 210.

Effect of Thiouracil and Thiourea on Thyroid of Chicks.—Mixner and his associates found that approximately 0.1 per cent of thiouracil and thiourea in the diet for fourteen days was the optimal dosage for the production of maximal enlargement of the thyroid in 1 to 2 day old White Plymouth Rock chicks. Female White Plymouth Rock chicks exhibited a greater thyroid response than did the males when fed 0.1 per cent of thiouracil or 0.1 per cent of thiourea in the feed for fourteen days. Increasing dosages of thyroxine progressively

decreased the thyroid enlargement produced in White Plymouth Rock chicks by 0.1 per cent of thiouracil in the diet. There was a sex difference in this regard, the females requiring greater amounts of thyroxine to depress the thyroid weights. Nine different breeds of chickens were given 0.1 per cent of thiouracil in drinking water and the thyroid responses noted. The thyroids of the lighter breeds of chickens gave a greater response as compared with the thyroids of the heavier breeds. The authors discuss the application of these experiments in the formulation of a biologic assay for materials having thyroxine-like activity.

Gastroenterology Baltimore

2:85-160 (Feb.) 1944

- *Gastritis in Military Service. J. W. Annis.—p. 85.
Effect of Sodium Alkyl Sulfate on Peptic Activity of Gastric Contents and on Healing of Gastric Ulcer in Man. J. B. Kirsner and R. A. Wolff.—p. 93.
Large Intestine: Review of Current Literature. E. E. Wollaege and J. A. Bergen.—p. 102.
Observations on Specific Vitamins and Atrophic Gastritis. N. Shapiro, L. Schiff, H. S. Bloch, E. S. Garber and Mary J. Hannaher.—p. 121.
Effect of Blacktongue-Producing Diet on Endoscopic Appearance of Gastric Mucosa in Dog. J. A. Layne and J. B. Carcy.—p. 133.
Effect of Bile Acids on Biliary Excretion of Cinchophen. J. H. Annegers, F. E. Snapp, A. J. Atkinson and A. C. Ivy.—p. 138.

Gastritis in the Military Service.—Annis states that during a two year period 2,755, or approximately 11 per cent, of the total medical patients were admitted to the gastrointestinal service at Camp Blanding. This figure includes 613 patients with epidemic jaundice following inoculation, who have been excluded in order to give a more correct representation of the true incidence of various disease entities. There remain 2,142 gastrointestinal patients. For this study all cases of gastric ulcer, tumor, trichophytobezoar and anomalies have been eliminated and only 276 with chronic dyspepsia remained. Gastros-copy revealed that 109, or 39.5 per cent, of these had some form of gastritis. Of these, 52 showed hypertrophic changes, 44 superficial changes and 13 atrophic changes. The 109 patients represent roughly 5 per cent of admissions to the gastrointestinal service. This figure is a conservative minimum, since the number of examinations which could be done was limited by the facilities at hand. Ideally all patients with chronic dyspepsia without other organic findings which adequately explain the symptom complex should be subjected to gastroscopy. All patients with moderate or severe changes have been recommended for separation from the service, and those with mild disorders have been reclassified and retained in less strenuous positions. Since dietary control is not possible in the Army, the latter solution has not been as effective as might be anticipated. These men have not made good soldiers, as judged by actual trial at duty following hospital treatment.

Georgia Medical Association Journal, Atlanta

33:1-28 (Jan.) 1944

- Symposium on Acute Surgical Problems in Abdomen
Modern Treatment of Perforative Appendicitis. T. C. Davison and A. H. Letton.—p. 1.
Acute Cholecystitis. E. Callaway.—p. 6.
Acute Pancreatitis. J. C. Patterson.—p. 9.
Treatment of Perforated Peptic Ulcers: Report of 36 Cases. M. M. Hagood.—p. 12.
Acute Intestinal Obstruction. C. H. Richardson.—p. 14.

33:29-62 (Feb.) 1944

- Symposium on Obstetrics and Gynecology
Rural Obstetrics Associated with Office Delivery. R. Torpin, J. B. Kay and J. T. Persall.—p. 29.
Continuous Caudal Analgesia in Normal and Complicated Labor. P. P. Volpito, R. A. Woodbury, B. Abreu and R. Torpin.—p. 35.
Tuberculosis of Cervix. J. F. Denton.—p. 37.
Vaginal Hysterectomy. O. S. Cofer.—p. 40.

Illinois Medical Journal, Chicago

85:53-104 (Feb.) 1944

- The Japanese as I Know Them. H. H. Thomas.—p. 72.
Short Cuts in Endocrine Diagnosis and Therapy. J. H. Hutton.—p. 78.
Which Peptic Ulcers Should Be Operated On? K. A. Meyer and F. Steigmann.—p. 82.
Generalized Lymphosarcomatosis with Marked Involvement of Brain. J. M. Radzinski and M. E. Uznanski.—p. 87.
Duties of Pathologist in United States Public Health Service. J. M. Lubitz.—p. 89.

Indiana State Medical Assn. Journal, Indianapolis

37:109-168 (March) 1944

- *Cerebral Arteriography. S. W. Gross.—p. 109.
Indications for Paracentesis of Anterior Chamber. P. C. Kronfeld.—p. 113.
*Use of Octofollin in Conditions of Estrogen Deficiencies and in Gonorrheal Vulvovaginitis. A. S. Jaeger.—p. 117.
Technical Improvements and Decline in Postoperative Mortality. C. N. Combs.—p. 120.
Congenital Dilatation of Pulmonary Artery with Erythremia. E. Rothstein and H. B. Pirkle.—p. 124.
Erythroblastosis Fetalis. G. A. Collett, W. Dodds and R. R. Pollom.—p. 126.
Sympathetic Ophthalmia. H. C. Wurster.—p. 130.

Cerebral Arteriography.—Gross exposed the common carotid by means of a small incision with the use of local anesthesia and injected the vessel under direct vision. Before the contemplated intracarotid injection of diodrast the patient should be questioned regarding asthma and other allergic disorders and hypersensitivity to iodine compounds. Contrast mediums are contraindicated in the presence of severe liver disease or nephritis. On the day before the arteriography the patient should have an intradermal or conjunctival test to rule out hypersensitivity to diodrast. Whereas formerly cerebral arteriography was advised only when accurate diagnosis was not possible by other means, at the present time there should be no hesitation in carrying out this procedure whenever information regarding alterations in the cerebral arteries would add to the diagnosis. Cerebral arteriography is most useful in the detection and accurate localization of cerebral aneurysms, arteriovenous fistulas, varices, vascular malformations, vascular tumors and other pathologic processes which implicate the intracranial blood vessels. Space consuming lesions, such as tumors, cysts and abscesses, are localized by the deformation which they produce in the cerebral arteries. The nature of a lesion may often be suspected from the arteriogram. In cases of malignant gliomas of the brain, fine, small vessels, many of them forming a dense network with lacunar widening in the region of the tumor, are found. In meningiomas net shaped and bundle shaped small vessels that radiate into the tumor are readily identified. In sarcomas a combination of the findings of the two other types is found. Cysts and abscesses are diagnosed by the absence of blood vessels in the area involved. Intracranial aneurysms which simulate tumors are easily recognized by arteriography.

Octofollin in Estrogen Deficiencies and Gonorrheal Vulvovaginitis.—Jaeger employed octofollin, a synthetic estrogenic substance, in the treatment of 140 patients. The substance was used in sesame oil for parenteral administration (5.0 mg. per cubic centimeter), as tablets of 0.5, 1, 2 and 5 mg. each, and in the form of small suppositories containing 1 mg. for the local treatment of gonorrheal vaginitis in children. The children treated numbered 30. There were also 73 women with menopausal disorders, 30 women under 40 with endocrine dysfunctions, 5 women with senile vaginitis and vulvovaginal and anorectal pruritus, and 2 women with acute mastitis. The clinical results have been satisfactory. All of the 73 patients classed as "menopausal" obtained relief. In cases of menstrual disturbance the results were not perfect. A better response was obtained with this estrogen when thyroid in varying amounts was used as supplemental therapy. This has been Jaeger's experience in the administration of any estrogen and serves to point out anew the pluriglandular nature of the great majority of endocrine dysfunctions. Octofollin is an excellent estrogenic agent and is to be preferred to diethylstilbestrol. In gonorrheal vaginitis of little girls, octofollin either parenterally in tablet form or locally in suppositories or vaginal inserts produced a rapid maturation of the vaginal mucosa and in conjunction with sulfonamides and local therapy yields negative smears somewhat sooner than when the other estrogenic substances, natural or synthetic, were used.

Iowa State Medical Society Journal, Des Moines

34:45-92 (Feb.) 1944

- Intrathoracic Tumors as Problem in Diagnosis. R. J. Harrington.—p. 45.
"Well Developed, Well Nourished." J. D. Boyd.—p. 61.
Agranulocytosis Following Sulfadiazine Administration. H. B. Weinberg.—p. 63.

Journal of Aviation Medicine, St. Paul

15:1-74 (Feb.) 1944

- Medical Problems in Overseas Air Transport Service. E. Day, R. B. Miller, L. White and J. M. Baldwin.—p. 2.
Problem of Fatigue Among Student Pilots at Naval Air Training Center, Pensacola, Florida. A. Graybiel, O. Horwitz and D. Gates.—p. 9.
Flight Testing of Items of Medical Equipment Used by Military Pilots and Their Crews. W. R. Lovelace II and J. A. Resch.—p. 26.
Use of Gas Mask for Relief of Occluded Eustachian Tubes and Sinuses. O. S. Gibbs.—p. 32.
Aeroneurosis. S. Schnur.—p. 36.

Journal of Bacteriology, Baltimore

47:117-220 (Feb.) 1944

- Aerobic Decomposition of Cellulose by Thermophilic Bacteria. H. C. Murray.—p. 117.
Variation of Group C Hemolytic Streptococci. H. E. Morton and Harriet E. Sommer.—p. 123.
Studies on Gonococcus: I. Constituents of Cell. H. E. Stokinger, Helen Ackerman and C. M. Carpenter.—p. 129.
Id.: II. Properties of Antigenic Fraction Isolated from Cell Free Gonococcal Broth Supernatants. H. E. Stokinger, Helen Ackerman and C. M. Carpenter.—p. 141.
Id.: III. Quantitative Agglutination Reactions of Neisseria with Special Reference to Neisseria Gonorrhoeae. H. E. Stokinger, C. M. Carpenter and Jane Plack.—p. 149.
Vitamin Requirements of Lactose Fermenting and Certain Other Yeasts. M. Rogosa.—p. 159.
Arabinose Fermenting Bacterium of Lactose Negative, Mannitol Negative Shigella Group. W. B. Christensen and G. H. Gowen.—p. 171.
Bactericidal and Bacteriostatic Action of Crystal Violet. C. E. Hoffmann and O. Rahn.—p. 177.
*Studies on Aspergillus Flavus: II. Production and Properties of Penicillin-like Substance—Flavacidin. Clara M. McKee, G. Rake and C. L. Houck.—p. 187.
Penicillin: I. Methods of Assay. W. H. Schmidt and A. J. Moyer.—p. 199.

Flavacidin, a Penicillin-like Substance.—McKee and her associates state that the mold *Aspergillus flavus* produces under certain conditions a substance, flavacidin, which resembles penicillin. Submerged growth in a modified Czapek-Dox medium with agitation and aeration is the most suitable of these conditions. The biologic characteristics of flavacidin and penicillin are similar: (1) Both are highly active against gram-positive organisms and relatively inactive against gram-negative bacilli; (2) the two protect mice in equal degree against pneumococcal infection; (3) both are highly soluble and hence are readily absorbed after parenteral inoculation and are quickly excreted by the kidneys; (4) cultures resistant to the action of penicillin are resistant also to flavacidin but not to other antibiotic substances; (5) an enzyme active against penicillin is active also against flavacidin but not against other antibiotic substances.

Journal of Experimental Medicine, New York

79:129-234 (Feb.) 1944

- Depression of Anaerobic Glycolysis of Embryonic Tissue by Western Strain of Equine Encephalomyelitis Virus. Prevention of This Effect by Specific Immune Serum. J. Victor and C. H. Huang.—p. 129.
Studies on Chemical Nature of Substance Inducing Transformation of Pneumococcal Types: Induction of Transformation by Desoxyribonucleic Acid Fraction Isolated from Pneumococcus Type III. O. T. Avery, C. M. MacLeod and M. McCarty.—p. 137.
Virus Causing Pneumonia in Cats and Producing Elementary Bodies. J. A. Baker.—p. 159.
Study of Conditions for Optimum Production of PR8 Influenza Virus in Chick Embryos. G. L. Miller.—p. 173.
Quantitative Aspects of Red Blood Cell Agglutination Test for Influenza Virus. G. L. Miller and W. M. Stanley.—p. 185.
Mouse Infectivity Titration of Influenza Virus. M. A. Lauffer and G. L. Miller.—p. 197.
Action of Crystalline Proteolytic Enzymes on Angiotensin. A. A. Plentl and I. H. Page.—p. 205.
Renal Pathology of Nutritional Hypertension in Rats. R. M. Calder.—p. 215.
Effect of Vitamin B₁ Deficiency and of Restricted Food Intake on Response of Mice to Lansing Strain of Poliomyelitis Virus. Claire Foster, J. H. Jones, W. Henle and Frieda Dorfman.—p. 221.

Journal of Immunology, Baltimore

48:87-154 (Feb.) 1944

- Antigenic Relationships of Shigella Paratyphenteriae. K. M. Wheeler.—p. 87.
Immunologic Specificity of Sulfonamide Protein Conjugates as Demonstrated by Anaphylaxis in Guinea Pigs and Schwartzman Phenomenon in Rabbits. I. E. Gerber and M. Gross.—p. 103.
Recovery of Virus of Lymphocytic Choriomeningitis from Erythrocytes of Infected Animals. G. Schwartzman.—p. 111.
Isolation and Characterization of Influenza Virus B (Lee Strain). D. G. Sharp, A. R. Taylor, I. W. McLean Jr., Dorothy Beard, J. W. Beard, A. E. Feller and J. H. Dingle.—p. 129.

Journal of International College of Surgeons, Chicago

7:1-84 (Jan.-Feb.) 1944

- Self-Alining Method of Treating Fractures of Long Bones. R. Anderson.—p. 1.
Surgical Treatment of Tuberculous and Malignant Diseases of the Respiratory System. C. M. Griffith.—p. 9.
Architectonic Surgery of Bones. A. O. Tirado.—p. 15.
Cerebral Injuries. M. S. Garibay.—p. 24.
Modification of Technic of Ventriculography. M. Vazquez.—p. 28.
*Adult Tissue Extracts in Promotion of Wound Healing. F. Mandl.—p. 34.
Suturing Infected Wounds of Face. H. D. Guilbert.—p. 44.
Present Status of Functional Liver Tests. A. O. Wilensky.—p. 50.
Restoration of Walking Capacity after Paralysis of Trunk and Leg Muscles: Operation Restricting Hip Joint to Movements in Two Axes. E. Spira.—p. 59.
Argumosa's Two Methods of Blepharoplasty (Usually Attributed to Other Authors). M. Márquez.—p. 63.

Tissue Extracts in Wound Healing.—Instead of using embryonic tissue to accelerate the healing of wounds, Mandl used adult tissue extracts, as had been suggested by Doljanski. At first he used saline extracts prepared from the heart of adult chickens. This extract was applied by the moist chamber method. Schloss used this extract in 58 cases and found that healing was effected in 35 cases and improvement obtained in 14, while in 9 the condition remained unchanged. Since the preservability of the saline adult tissue extracts is limited, the author proceeded to study the method devised by Werner and Doljanski, who isolated certain fractions from the tissue extracts and prepared them in the form of a powder. A thin layer of this powder is applied to the surface of the wound. In case of infection the tissue powder is mixed with sulfanilamide. This powder was used in 26 chronic wounds which refused to heal or did not respond to other methods of treatment, in 5 surgical wounds and in 5 wounds in which ordinarily grafting would have been done. Of the 26 chronic wounds all but 6 responded to the powder and there was no failure in the remaining 10 cases. The results with the tissue extracts were particularly convincing when it was preeminently the absence of epithelization that delayed the healing of the wound. Wounds that have been under plaster of paris often show excellent granulations but no epithelization. In cases of this type the tissue extracts are particularly effective. Positive results were obtained also in diabetic ulcers, in trophic ulcers and in ulcers resulting from burns.

Journal of Nat. Cancer Inst., Washington, D. C.

4:339-428 (Feb.) 1944

- *Incidence of Leukemia in Physicians. P. S. Henshaw and J. W. Hawkins, with technical assistance of H. L. Meyer, J. Woodruff and J. F. Marshall.—p. 339.
Organizational Structure and Activities of State Cancer Programs. J. W. Hawkins.—p. 347.
Measurement of Epithelial Growth in Surgical Wounds of Rabbit's Ear. P. S. Henshaw and H. L. Meyer.—p. 351.
Injection and Clearing Method for Rabbit's Ear. Thelma B. Dunn and A. M. Kessel.—p. 359.
Multiple Tissue Carrier for Histologic Technic. A. M. Kessel.—p. 361.
Production of Malignancy in Vitro: VII. Metabolism and Biotin Content of Tumors Produced. D. Burk, W. R. Earle and R. J. Winzler, with technical assistance of Doris F. MacNeary, Marie Hesselbach, Emma Shelton and E. L. Schilling.—p. 363.
Chromosomal Changes in Epidermal Carcinogenesis. J. J. Biesele and E. V. Cowdry.—p. 373.
Studies on Hepatomas: I. Size and Spacing of Multiple Doses in Induction of Carbon Tetrachloride Hepatomas. A. B. Eschenbrenner, with technical assistance of Eliza Miller.—p. 385.
Transplantable Osteogenic Sarcoma Originating in a C3H Mouse. M. K. Barrett, A. J. Dalton, J. E. Edwards and J. P. Greenstein, with technical assistance of Virginia C. Briggs.—p. 389.
Importance of Genetic Influence of Occurrence of Mammary Tumors in Virgin Female Mice. W. E. Heston and H. B. Andervont.—p. 403.
Effect of Amino Acids on Induction of Leukemia in Mice. J. White, G. B. Mider and W. E. Heston.—p. 409.
Effect of Diethylstilbestrol on Mammary Tumor Formation in Strain C3H Mice Fed Low Cystine Diet. Florence R. White and J. White.—p. 413.
Blood Protease and Cancer. R. J. Winzler and D. Burk, with technical assistance of Marie Hesselbach.—p. 417.

Leukemia in Physicians.—Henshaw and Hawkins cite clinical and experimental observations from the literature which indicate an etiologic significance of radiation in leukemia. There is no direct proof that radiation actually acts as a carcinogenic

agent in the induction of leukemia. The authors thought it desirable to compare the incidence of leukemia in persons occupationally exposed to radiation with that in others not so exposed. Since it may be presumed that physicians as a group are more exposed to radiation than is the average person, the authors undertook to determine the incidence of leukemia in physicians and in the general population. Data were obtained from the death lists of THE JOURNAL, from the mortality reports of the United States Bureau of the Census and from an unpublished compilation of the United States Public Health Service. Comparisons were made on the basis of (1) the ratio of deaths from leukemia to deaths from cancer, (2) ratio of deaths from leukemia to total death rates, and (3) death rates from leukemia. Leukemia was recognized approximately 1.7 times more frequently among physicians than among white males in the general population. While these observations furnish no direct proof that radiation acts to incite leukemia in human beings, they are in accord with the findings on experimental animals in which exposure to x-rays increased the incidence of leukemia.

Journal of Neurosurgery, Springfield, Ill.

1:1-82 (Jan.) 1944

Some of Harvey Cushing's Contributions to Neurological Surgery. G. Horrax.—p. 3.

*Use of Products Prepared from Human Fibrinogen and Human Thrombin in Neurosurgery: Fibrin Foams as Hemostatic Agents; Fibrin Films in Repair of Dural Defects and in Prevention of Meningocerebral Adhesions. F. D. Ingraham and O. T. Bailey.—p. 23.

Radiographic Control for Paravertebral Injection of Alcohol in Angina Pectoris. J. C. White and R. W. Gentry.—p. 40.

Multiple Meningiomas: Report of 2 Cases. J. A. Mufson and L. M. Davidoff.—p. 45.

Perforator and Ball Burr. K. G. McKenzie.—p. 58.

Cerebrospinal Rhinorrhea—Surgical Repair. W. J. German.—p. 60.

Lucite Calvarium—Method for Direct Observation of Brain: I. Surgical and Lucite Processing Techniques. C. H. Shelden, R. H. Pudenz, J. S. Restarski and W. McK. Craig.—p. 67.

Chemotherapy of Intracranial Infections: IV. Treatment of Pneumococcal Meningitis by Intrathecal Administration of Penicillin. C. Pfeiffer and W. F. Meacham.—p. 76.

Fibrin Foams and Fibrin Films in Neurosurgery.—

Ingraham and Bailey describe experimental, clinical and pathologic studies on the use of "fibrin foam" as a hemostatic and on "fibrin film" as a dural substitute, and in the prevention of meningocerebral adhesions. Both substances are derived by fractionation of human blood plasma. Fibrin foam is an effective absorbable hemostatic agent. It easily controls oozing from the dura, the beds of central nervous system tumors and the brain substance as well as venous bleeding from the spinal veins, superficial cerebral veins and the dural sinuses. Microscopic studies of experimental and human material showed that fibrin foam is rapidly absorbed and excites a minimal tissue reaction. Fibrin films have been used as a dural substitute and in the prevention of meningocerebral adhesions. Patients followed up to nine months have had satisfactory results. These have paralleled observations in a series of monkeys. Both fibrin foam and fibrin film may be used at the same time as sulfadiazine and penicillin without change in tissue reactions.

Journal of Nutrition, Philadelphia

27:123-212 (Feb.) 1944

Nutritional Dermatoses in Rat: IX. Evaluation of Interrelationship of Magnesium Deficiency and Deficiencies of Vitamin B Complex. M. Sullivan and Virginia J. Evans.—p. 123.

*Nutrition and Tolerance to Atabrine. D. M. Hegsted, J. M. McKibbin and F. J. Stare.—p. 141.

Effect of Atabrine on Choline Deficiency in Young Rat. D. M. Hegsted, J. M. McKibbin and F. J. Stare.—p. 149.

Vitamin A Storage and Factors That Affect the Liver. C. C. Clayton and C. A. Baumann.—p. 155.

Physiologic and Biochemical Functions in Normal Young Men on Diet Restricted in Riboflavin. A. Keys, A. F. Henschel, O. Mickelsen, J. M. Brozek and J. H. Crawford.—p. 165.

*Influence of Protein Content of Diet on Fat Digestibility. R. H. Barnes, Margaret F. Primrose and G. O. Burr.—p. 179.

Study of Diet of Twenty Women in Moderate Income Group. J. C. Winters and Ruth E. Leslie, with the technical assistance of Catherine Donnell.—p. 185.

Studies on Vitamin E Deficiency in Chicks. H. Dam.—p. 193.

Nutrition and Tolerance to Atabrine.—Hegsted and his collaborators report experiments designed to determine whether various dietary regimens affect the toxicity of atabrine over extended periods. Rats were fed atabrine at levels of 0 to

65 mg. per hundred grams of ration. Young rats consumed an amount equal to approximately 10 per cent of their body weight daily. Thus levels of the drug per hundred grams of ration in short experiments are similar to levels in terms of per kilogram of body weight daily. Experiments were made also on chicks. On the basis of their observations the authors concluded that: 1. Atabrine added to an adequate diet in levels of 25 mg. per kilogram of body weight daily or less is completely nontoxic as judged by growth, general appearance and behavior, gross and microscopic pathologic changes and reproductive ability. 2. Levels of 40 to 65 mg. per hundred grams of ration retard growth by 20 to 30 per cent, the fur is discolored, and the animals are unkempt. The addition of various vitamins, yeast or protein to an already adequate diet does not prevent these changes. 3. The slow growth obtained on suboptimal levels of riboflavin or protein is further decreased by the addition of 40 mg. of atabrine to 100 Gm. of the diet. With diets suboptimal in vitamin A, addition of atabrine does not cause a further reduction in growth rate. 4. On the basis of rate of growth with diets containing atabrine, the chick is from three to four times as tolerant of the drug as is the rat.

Protein Content of Diet and Fat Digestibility.—In the course of nutrition studies in which two levels of protein were fed to rats, Barnes and his associates noticed that the groups receiving the lower protein diets excreted feces that were consistently light in color. The fat content was considerably elevated in the feces of the rats receiving the lower protein diets. Comparisons of fat digestibilities in rats receiving diets containing approximately 14 or 30 per cent protein revealed that the lower protein intake is associated with a lower fat digestibility. A well absorbed fat, such as lard, is influenced only slightly, while more poorly digestible fats, such as lard containing hydrogenated fat and butter fat, are more seriously affected.

Journal of Pediatrics, St. Louis

24:123-248 (Feb.) 1944

*Mechanism of Muscle Spasm in Poliomyelitis. H. Kabat and M. E. Knapp.—p. 123.

Traumatic Cardiac Injury in Child with Probable Rupture of Interventricular Septum. E. D. Bayrd and S. Gibson.—p. 138.

Late Effects of Severe Asphyxia Neonatorum: Preliminary Report. R. A. Darke.—p. 148.

Effect of Vitamin D from Cod Liver Oil and Tuna Liver Oil on Serum Phosphatase Concentrations in Rachitic Infants. D. J. Barnes, Bertha Munks and M. Kaucher.—p. 159.

Further Observations on Use of Single Massive Doses of Vitamin D in Prevention of Rickets. J. J. Wolf.—p. 167.

*Comparative Toxicities of Sulfadiazine and Sulfathiazole in Children. J. O. Dowrie and M. H. Abramson.—p. 176.

Advances in Chemotherapy of Influenzal Meningitis. M. L. Blumberg, E. Tannenbaum and M. Gleich.—p. 182.

Aerodynia in 13 Year Old Boy: Report of Case. Katherine Anderson.—p. 186.

Congenital Leukemia: Report of 2 Cases. F. S. Cross.—p. 191.

Sublingual Granuloma in Infancy (Riga-Fede's Disease): Report of 2 Cases. M. Abramson and J. O. Dowrie.—p. 195.

Fried Food for Children? F. H. Richardson.—p. 199.

Psychiatric Consultation Service in Pediatric Outpatient Department. Mabel Huschka.—p. 206.

Muscle Spasm in Poliomyelitis.—According to Kabat and Knapp the emphasis placed on muscle spasm is one of the fundamental innovations of the Kenny concept of poliomyelitis. The authors gave intravenous injections of pentothal sodium in order to produce loss of consciousness and elimination of pain. Muscle spasm in poliomyelitis appeared to be of two types: (1) muscle hypertonus and (2) hyperirritable stretch reflex. Muscle spasm is relaxed temporarily by spinal anesthesia or block of the myoneural junction in cases of acute and subacute poliomyelitis. Intravenous pentothal sodium decreases muscle spasm moderately in some patients and is ineffective in others. Muscle spasm in poliomyelitis has a neurogenic mechanism and is apparently the result of an increased discharge of nerve impulses through the motor neurons. There is evidence that the pathologic basis of muscle spasm in poliomyelitis is a lesion of internuncial neurons in the gray matter of the spinal cord. The muscle spasm is produced as a result of release of proprioceptive reflexes from inhibition. Muscle spasm has been produced in experimental animals by temporary arrest of circulation in the spinal cord. Correlated with this muscle spasm, the spinal cord showed a lesion localized to the internuncial neurons, while the anterior horn cells appeared normal. In 68 cases of

poliomyelitis postmortem examinations revealed an internuncial lesion in almost every patient. Twenty-six patients showed an internuncial lesion with relatively normal anterior horn cells. Measurements of chronaxia of muscles in 14 patients with poliomyelitis who exhibited severe muscle spasm demonstrated that there is no correlation of muscle spasm with anterior horn cell damage. Many muscles in spasm showed a normal chronaxia while others showed more or less pronounced increases in chronaxia. These results suggest that destruction of anterior horn cells is not the basis of muscle spasm in poliomyelitis. Neostigmine, acting on the spinal cord to inhibit proprioceptive reflexes, relaxes muscle spasm and may be of therapeutic value for poliomyelitis.

Comparative Toxicities of Sulfadiazine and Sulfathiazole in Children.—Dowrie and Abramson compared the toxic reactions observed in 54 children treated with sulfadiazine with those in 53 children treated with sulfathiazole. In the first group granulocytopenia occurred in 44.3 per cent; in the second, in 37.8 per cent. There were no cases of agranulocytosis, even when the drug was continued after granulocytopenia appeared. Simultaneous administration of alkali was employed in the majority of instances. The only case of gross hematuria occurred in a child who had not received alkali. No instances of anuria were observed. The use of alkali appears greatly to lessen the danger of complications in the urinary system. Drug rashes occurred four times, all in children receiving sulfathiazole. Three of these resembled erythema nodosum. The administration of ascorbic acid in massive dosage appeared to have no detoxifying effect for the two sulfonamides studied. These observations fail to reveal any striking difference in toxicity between sulfadiazine and sulfathiazole, with the exception of the greater incidence of rashes with the latter.

Journal of Thoracic Surgery, St. Louis

13:1-66 (Feb.) 1944.

- *Allergy and Tuberculous Tracheobronchitis. W. H. Oatway Jr., J. W. Gale and W. A. Mowry.—p. 1.
Huge Intrathoracic Fibroma: Report of Case. O. T. Clagett and P. F. Hausmann.—p. 6.
Mediastinal Lipoma: Case Report. W. L. Watson and J. A. Urban.—p. 16.
Death from Air Embolism Following Bronchoscopy: Case Report. R. A. S. Cory.—p. 30.
Serious Hemorrhage During Closed Internal Pneumonolysis: Case Report. R. A. S. Cory.—p. 32.
Thoracoplasty for Tuberculosis: Late Results. A. R. Valle.—p. 36.
*Pseudobronchiectasis. B. Blades and D. J. Dugan.—p. 40.
Threshold Variations to Vagus Nerve Stimulation. C. L. Burstein, S. J. Martin and E. A. Rovenstine.—p. 49.
Chylothorax. A. M. Olsen and G. T. Wilson.—p. 53.
Anomalous Pulmonary Veins: Report of Case. D. E. Compere and H. F. Forsyth.—p. 63.

Allergy and Tuberculous Tracheobronchitis.—Oatway and his associates employed bronchoscopy at least once in the examination of 100 patients suspected of having tuberculous tracheobronchitis. A routine history, physical examination, complete blood count (including eosinophils), sedimentation rate, chest x-ray examination and sputum and gastric concentration studies for tubercle bacilli were obtained in all cases. Smears from the bronchi of a few patients were examined for eosinophils. The x-ray films were examined for the presence of a tension cavity, atelectasis or a dominantly truncal lesion. A special history was taken for the presence of a personal or family history of asthma, hay fever, allergic rhinitis, migraine, food sensitivity or urticaria and other suggestive skin lesions. Skin tests were made on all patients able to remain long enough in the hospital for this purpose. The authors arrive at the following conclusions: Patients with tuberculous tracheobronchitis react more strongly to routine allergen skin tests than do tuberculous patients without such lesions. Tuberculous tracheobronchitis occurs more frequently in women than in men. The most serious bronchial lesions occur in women with clinical evidence of allergy. Patients with tuberculous tracheobronchitis are not unusually reactive to tuberculin by skin test. However, those who were most sensitive to tuberculin were most sensitive also to the routine allergens by skin test. There is a correlation between a personal history of allergy and a positive reaction to routine allergens, although most patients with a negative personal history react to some allergens. There is an apparent direct relationship between a personal history of allergy and

the presence of tuberculous tracheobronchitis. Clinical evidence of tuberculous tracheobronchitis correlates well with the finding of bronchial lesions by bronchoscopy; eosinophilia does not. Reaction to the routine allergens does not correlate well with clinical signs. Attempts to desensitize patients with tuberculous tracheobronchitis, using tuberculin, do not seem indicated. Attempts to control an allergic process by desensitization to any pertinent routine allergens or by other effective means seem legitimate and indicated.

Pseudobronchiectasis.—Blades and Dugan emphasize the effects of atypical pneumonia on the bronchi and the production of pseudobronchiectasis. Primary atypical pneumonia is associated with peculiar x-ray shadows in the lungs. The roentgenograms in these cases are usually characterized by mottled densities. Lobular and lobar atelectases are common, with wide variance of distribution and extent. Sometimes the roentgenographic manifestations of the disease are bizarre and misleading. Basilar densities in the roentgenogram of a patient with a chronic productive cough might easily lead to a preliminary diagnosis of bronchiectasis. Delineation of the bronchi with radiopaque oil will, under ordinary circumstances, settle the diagnostic problem when bronchiectasis is suspected, but the authors noted that following atypical pneumonia iodized oil bronchograms may occasionally be misleading and give the erroneous impression that the condition is true bronchiectasis. Their experiences suggest that a critical analysis of the history, careful examination of the sputum and the appearance of the bronchial tree when examined with the bronchoscope will warn the thoracic surgeon that the disease may not be true bronchiectasis, provided he is aware that atypical pneumonia can produce temporary dilatations of the bronchi. A positive diagnosis of pseudobronchiectasis is justifiable only when subsequent visualization of the bronchial tree reveals normal configuration of bronchi which were formerly dilated. Categorical statements on the length of time pseudobronchiectasis resulting from atypical pneumonia may persist are impossible. Probably in a few cases the bronchi will remain enlarged for as long as three months. In most instances at least part of the bronchi will have returned to normal in four to six weeks. If the examiner is aware that atypical pneumonia is capable of producing temporary dilatations of the bronchi, it would be easy to consider for a time an early or dry bronchiectasis an example of pseudobronchiectasis. This would not jeopardize the patient's future health or constitute a grave error in clinical judgment; moreover, progression of symptoms and repeated demonstration of the bronchial dilatations would soon establish the correct diagnosis.

Journal of Urology, Baltimore

51:117-234 (Feb.) 1944. Partial Index

- Pelvic Single Kidney: Report of Case. O. S. Lowsley and J. H. Menning.—p. 117.
Retroperitoneal Tumors. G. F. Hoch.—p. 128.
*Use of "Depropanex"—Deproteinized Pancreatic Tissue Extract—for Relief of Renal and Ureteral Pain: Effect in Passage of Renal and Ureteral Stones. T. J. Kirwin, O. S. Lowsley and J. H. Menning.—p. 132.
Primary Osteogenic Sarcoma of Bladder. R. G. Tremblay, A. R. Crane and A. Harris.—p. 143.
Hyperplastic Change at Vesical Neck in Female. J. A. Hyams and S. R. Weinberg.—p. 149.
Large Congenital Prostatic Diverticulum. F. L. Senger and E. K. Morgan.—p. 162.
Congenital Valvular Obstruction of Prostatic Urethra: Notes on Surgical Procedure. R. M. Nesbit.—p. 167.
Hypergenitalism in Childhood: Consideration of Hypothalamic-Hypophyseal Apparatus. C. M. McKenna, I. P. Bronstein and J. H. Kiefer.—p. 182.
Simple and Practical Cystometer. C. E. Jacobson Jr.—p. 189.
Failure of Cystometrograph as Diagnostic Test: Clinical Observations and Statistical Analysis. H. M. Weyrauch, E. L. Lucia and Joan Howard.—p. 191.
Treatment of Resistant Gonorrhea with Induced Hyperthermia Supplemented by Sulfonamide Therapy. J. H. Harrison, T. W. Botsford and F. P. Ross.—p. 215.
Blue Casts and Other Urinary Findings in Certain Individuals Following Intravenous Administration of Indigo Carmine. H. L. Douglass and C. G. Ransom.—p. 228.

Deproteinized Pancreatic Tissue Extract for Renal and Ureteral Pain.—Kirwin and his associates employed a saline solution of a chemically derived, protein free nitrogenous fraction obtained from an acid alcohol treatment of beef pancreas. Physiologic tests show it to be free from insulin, histamine and acetylcholine. The substance was administered to 20

patients with renal or ureteral calculi the size of which did not preclude the possibility of their being passed without assistance. Seven patients passed their stones several days after the drug was administered, but in none of these could it be said with certainty that the medication was directly responsible for the passage of the stone even though the inference was strong. In 12 cases relief of pain was complete, so that no additional analgesia was necessary. The authors used the pancreatic extract also in 33 patients who underwent cystoscopy. The patients were given 3 cc. of the extract before the instrument was introduced. There were 22 who experienced no pain whatever. In the control series of 34 there were only 9 who were entirely free from pain. The extract is usually given intramuscularly in doses of 2 to 4 cc. The authors conclude that the extract is an effective agent for the relief of renal and ureteral colic.

Kentucky Medical Journal, Bowling Green

42:31-60 (Feb.) 1944

- Medical and Surgical Diseases of Prostate Gland. H. L. Kretschmer.—p. 33.
Chemotherapy in Digestive Disorders. J. A. Barger.—p. 36.
Occupational Diseases. W. E. Doyle.—p. 45.
Elongated Styloid Process: Case Report. A. L. Juers.—p. 55.

42:61-92 (March) 1944

- We Are Not Content. D. N. W. Grant.—p. 63.
Burns. C. S. Beck.—p. 68.
Scientific Exhibit at Southern Medical Association. M. Casper.—p. 72.
Sulfonamide Treatment of Acute Bacterial Meningitis. A. E. Brown.—p. 75.
Gastric and Duodenal Ulcer, Surgical Management. A. W. Allen.—p. 80.

Michigan State Medical Society Journal, Lansing

43:209-270 (March) 1944

- Preventable Blindness. P. C. Kronfeld.—p. 209.
Management of Large Vesical Calculi. I. G. Downer.—p. 214.
Clinical, Histopathologic and Inheritance Factors in Peroneal Muscular Atrophy (Charcot-Marie-Tooth Type). L. A. Schwartz.—p. 219.
Chinolith in Child. F. T. Munson.—p. 231.
Chordoma: Report of Case. W. E. Keane.—p. 232.

Peroneal Muscular Atrophy.—Schwartz discusses a form of neural or neuritic atrophy, the hereditary familial peroneal muscular atrophy (Charcot-Marie-Tooth syndrome). He brings down to date the history of a family with this type of muscular atrophy, which was first reported by Macklin and Bowman in 1926. The author stresses its hereditary character, pointing out that the P family, of which the subsequent case presentation is a part, now has 26 cases in five generations. In this family males transmitted the disease three times, females seven times. It is generally accepted that males are more frequently affected than females. This is borne out in the P family histories, which show that, although males have transmitted the disease but three times in five generations, 13 males were affected. Peroneal atrophy usually begins in late childhood or youth. In the P family there was a tendency for the disease to appear at increasingly younger ages in succeeding generations. The first indication of progressive peroneal atrophy is atrophic weakness in the small extensor and abductor foot muscles, generally beginning in the abductors. Thereafter it spreads to the extensor longus hallucis, extensor communis digitorum and peronei, producing in combination with atrophy of small foot muscles a mild equinovarus deformity and "pied-en griffe." Flexor muscles of the ankle remain unaffected for the longest period, although they too become involved. There is the tendency to develop hammer toes and pes cavus, sometimes eliciting no complaint except the necessity for higher arched shoes. The arches slowly become higher, with hyperextension of the metatarsophalangeal joints coupled with flexion of the digital joints. With the slow spreading of the atrophy, all muscles below the knee joint are affected. The patient exhibits the typical "stork legs." The author reviews the genealogy of the P family and presents the case of a man seen by him who was a member of this family. In this patient treatment with vitamin E and B₁₂ was tried, because these vitamins proved effective in muscular atrophy. Adrenal cortex extract was instituted in an attempt to effect further permeability of circulation in skeletal muscles and blood capillary walls. Light and heat treatment

was prescribed to relieve vasomotor symptoms and to make the patient more comfortable. Aminoacetic acid was given to provide added energy by increased protein metabolism. With this treatment there was some improvement, and subjective improvement is the best that can be hoped.

Military Surgeon, Washington, D. C.

94:131-188 (March) 1944

- Work of Flight Surgeon. D. N. W. Grant.—p. 131.
Delayed Effects of Trauma of Abdominal Viscera. W. S. Bainbridge.—p. 135.
Some Problems of Relief and Rehabilitation. A. Gregg.—p. 140.
Air Evacuation. R. L. Meiling.—p. 143.
Wartime Physical Reconstruction. F. H. Krusen.—p. 147.
Wartime Experiences Aboard Naval Hospital Ship. M. J. Aston.—p. 157.
Soldiers Who Break Down in Battle: Some Predisposing Factors. W. T. Brown and M. Moore.—p. 160.
Soldiers Who Break Down: Family Background and Past History. W. T. Brown and M. Moore.—p. 162.
*Myocardial Infarction Following Reduction of Atmospheric Pressure in Low Pressure Chamber. E. E. Hammonds.—p. 163.
Adaptation of Government Issue Spectacles as Holder for Nasal Tube. E. Alexander Jr.—p. 166.
Torsion of Testicle on Epididymis: Case Report. C. Ferguson.—p. 167.

Myocardial Infarction Following Test in Low Pressure Chamber.—Hammonds reports a case of bends in the knees acquired by a student gunner while ascending in the chamber to 38,000 feet. Because of this he was removed from the chamber. When students were subjected to an altitude test of 17,000 feet under anoxic conditions to demonstrate oxygen want, this student gunner was also put in the chamber, since he had completely recovered from the bends. He had no complaints even during the anoxic period. He left the low pressure chamber at 11:30 p. m. and went to bed. He spent a restless night and was awakened in the morning for reveille. After hurriedly dressing he ran down the steps and stood reveille, and after reveille decided to brush his teeth before going to breakfast. He ran up the stairs and on reaching the top was seized with a viselike constriction in his chest which was incapacitating. His appearance was such that his sergeant had him taken to the hospital. On admission the student was short of breath, cyanotic and obviously ill. His pulse rate was 120 per minute, the heart sounds were indistinct and distant, the chest was full of moist, bubbling rales, and the blood pressure was 90/40. He was complaining of substernal constriction and pain. A diagnosis of myocardial infarction was made on the basis of electrocardiographic and roentgenographic examinations. Questioning revealed that prior to his enlistment the man had been sent home by the induction board because of a slight elevation of systolic blood pressure. This elevation disappeared following three days of bed rest, and he was admitted to the cadet school. Hammonds concludes that persons having evidence of cardiovascular abnormality should not be subjected to high altitudes, especially altitudes which produce more than 10 per cent oxygen unsaturation of arterial blood.

Minnesota Medicine, St. Paul

27:161-240 (March) 1944

- *Potassium Thiocyanate in Hypertension. J. S. Blumenthal and M. Wetherby.—p. 177.
Diverticulitis. W. C. Carroll.—p. 185.
Intrapleural Pneumonolysis. K. H. Pfuetzner.—p. 188.
Human Serum and Plasma in Pediatric Practice. E. S. Platou and P. F. Dwan.—p. 190.
Recurring Retroperitoneal Fibromyxosarcoma. C. F. Dixon and J. L. Vadheim.—p. 203.

Potassium Thiocyanate in Hypertension.—Blumenthal and Wetherby used vitamin A in 20 cases and potassium thiocyanate in 70. Vitamin A had no effect in any. Potassium thiocyanate was given in 3 grain (0.2 Gm.) doses once daily by mouth. This was continued for one week, when the blood cyanate concentration and blood pressure were determined. If a sharp drop in blood pressure occurred or if toxic symptoms or severe weakness developed, the dose was decreased. If the blood cyanate level had not reached 12 mg. per hundred cubic centimeters, if no blood pressure drop occurred and if no signs of toxicity were present, the dose was increased by 3 grains daily every week or two until a drop did take place, the blood cyanate level did reach 12 mg. per hundred cubic centimeters

or toxic symptoms developed. When the symptoms, blood pressure, dosage and blood cyanate level had been correlated to the best results possible, the patient was observed at intervals of one to three months. A level higher than 12 mg. per hundred cubic centimeters was lowered by decreasing the dose. An attempt was made to keep the cyanate level as low as possible compatible with the well-being of the patient and lowering of the blood pressure. Potassium thiocyanate resulted in 15 per cent reduction in blood pressure in 32 cases and in 10 per cent in 15 cases. It gave symptomatic relief in 43 of 58 patients with symptoms of hypertension. The question of the ability of this drug to prolong life needs more intensive study over a long period of time.

Nebraska State Medical Journal, Lincoln

29:1-32 (Jan.) 1944

- X-ray Diagnosis of the Nontuberculous Chest. F. L. Simonds.—p. 4.
Explosion Hazard in Anesthesia. S. D. Miller.—p. 9.
In Case of Accident—What Do We Need? J. E. M. Thomson.—p. 12.

29:33-64 (Feb.) 1944

- Navigating the Medical Future with Confidence. E. H. Skinner.—p. 37.
Chemical Carcinogenesis, Drugs, Dyes, Remedies and Cosmetics, with Particular Reference to Bladder Tumors. E. Davis.—p. 41.
*Primary Diphtheria of Conjunctiva: Case. W. H. Morrison.—p. 51.
Malaria. W. S. Petty and L. O. Vose.—p. 53.

Primary Diphtheria of Conjunctiva.—Morrison differentiates three types of diphtheritic conjunctivitis: (1) the rare catarrhal form, (2) the more common pseudomembranous kind and (3) the typical membranous type. A child aged 7 months, whose eyes were red and discharged pus for several days, was not helped by irrigations. The lids were edematous and red but not boardlike. Smears showed staphylococci, and a culture revealed that the organism was *Staphylococcus aureus*. Sulfathiazole ointment 5 per cent applied locally three times a day and sulfathiazole orally every four hours day and night were given. Two days later the condition appeared unchanged. There was a gray transparent conjunctival membrane which could not be wiped off or torn away from the lids. The least manipulation of the conjunctiva caused bleeding. A culture was taken on Loeffler's medium and the child was given 5,000 units of diphtheria antitoxin. Within twelve hours the lid edema was gone, the child opened its eye spontaneously and no membrane could be seen. The culture contained organisms morphologically characteristic of diphtheria bacilli. This was not a true membranous type but rather pseudomembranous conjunctivitis, as the lids failed to assume a boardlike hardness and the membrane failed to involve the bulbar conjunctiva.

New England Journal of Medicine, Boston

230:209-242 (Feb. 24) 1944

- Use of Refrigeration in Amputations and Peripheral Vascular Disease. E. E. O'Neil.—p. 209.
*Treatment of Pulmonary Edema Due to Gas Poisoning in War and in Civilian Life, with Special Reference to Use of Positive Pressure Respiration. A. L. Barach.—p. 216.
Normal Air Encephalograms in Patients with Convulsive Seizures and Tumor of Brain. H. H. Merritt and C. Brenner.—p. 224.
Cardiogenic Shock. N. H. Boyer.—p. 226.

Pulmonary Edema Due to Gas Poisoning.—Barach outlines a treatment for edema of the lungs following exposure to irritant gases such as hydrogen chloride, hydrogen bromide and hydrogen fluoride, chlorine, fluorine, bromine, sulfur dioxide and certain oxides of nitrogen, as well as phosgene, diphosgene and chloropicrin. The pathologic condition found after inhalation of irritating gases is that of intense congestion and inflammatory edema, followed by a cellular exudate with a varying amount of necrosis of the lining membrane of the respiratory passage. In many cases of pulmonary edema treated with rest, warmth and inhalation of air with a high oxygen concentration, the passage of serum from the capillaries into the alveoli continues and drainage through the respiratory passage-way is impeded, with the ultimate development of bronchopneumonia and death. Barach and his colleagues developed an apparatus for administration of positive pressure in cases of pulmonary edema produced by gas poisoning. Inhalation of oxygen and helium-oxygen mixtures under positive pressure is

of value in the treatment of obstructive dyspnea and acute pulmonary edema. The only contraindication to positive pressure respiration is the presence of shock. The employment of positive pressure respiration in cases of industrial gas poisoning indicates that edema of the lungs may be prevented and, when it has occurred, tends to respond to the administration of positive pressure in a far more successful way than with any hitherto suggested procedure. A pressure of 3 to 6 cm. of water is usually effective in the treatment of pulmonary edema. If all signs of edema have cleared, a gradual reduction of pressure over a period of hours is recommended. Prevention of pulmonary edema after exposure to an irritant gas is accomplished by inhalation of air or oxygen against positive pressure for two to three hours and subsequent trial periods of freedom from positive pressure to determine whether or not edema intervenes. Since pulmonary edema may take place as late as twelve hours after exposure, means for providing positive pressure should be at hand. The inhalation of a spray containing 0.5 cc. of 1 per cent epinephrine is helpful in cases in which bronchial spasm is present, and inhalation of 0.5 to 1.0 cc. of 1 per cent neosynephrine is suggested to increase the lumen of the tracheo-bronchial tree by vasoconstriction. Immediate administration of positive pressure is suggested in disasters in which phosgene or other gases are liberated.

230:243-272 (March 2) 1944

- Proposed Extension of Social Security Program, with Special Reference to Health and Medical Aspects. I. S. Falk.—p. 243.
Blue Cross, Blue Shield and Wagner-Murray-Dingell Bill. N. W. Faxon.—p. 249.
*Prolonged Cases of Grief Reaction Treated by Electric Shock. A. Myerson.—p. 255.
Cardiogenic Shock. N. H. Boyer.—p. 256.

230:273-302 (March 9) 1944

- Psychoneuroses of War. J. L. Henderson and M. Moore.—p. 273.
Meningitis in Children: Report of 28 Cases. C. H. Hollis and J. M. Baty.—p. 278.
New Theories Concerning Asthma. F. M. Rackemann.—p. 284.

Grief Reaction Treated with Electric Shock.—Myerson reports a study of 4 women in whom prolonged grief reaction followed a tragic bereavement. The prolongation, intensity and transformation of the grief were the pathologic features. All the patients fell into a vicious circle of nervous and mental disturbance from which it seemed impossible to rescue them by the ordinary therapeutic measures. In 1 case the abnormal mental state had persisted for years and it was necessary to produce an amnesia, to expunge for a time almost all memory before the personality could reorganize itself along normal lines. In the other 3 cases a few electric shocks brought about a striking and immediate improvement and recovery. It does not seem necessary to erase the memory of the traumatic experience to produce a readjustment to the altered life that bereavement has brought in its train. The shock treatment does not appear to have a psychologic foundation; rather, physiologic alterations of an unknown type seem to take place.

New Orleans Medical and Surgical Journal

96:341-384 (Feb.) 1944

- "Near Misses" in X-Ray Diagnosis. F. J. Hodges.—p. 341.
Craniocerebral Trauma: Discussion of General Medical and Nursing Care. R. G. Spurling.—p. 347.
Leptospirosis: Report of 2 Cases. G. Balkin.—p. 351.
Urticaria Produced by Poisonous Caterpillars. V. D'Ingianni.—p. 356.
Physician's Role in Industrial Hygiene. J. G. Townsend.—p. 360.
Physiologic Action of Cortical Extracts and Desoxycorticosterone. C. M. Wilson.—p. 365.

96:385-434 (March) 1944

- Maternal and Child Welfare in New Orleans. R. E. Arnell and J. M. Whitney.—p. 385.
Industrial Hygiene Program Today. J. G. Townsend.—p. 388.
A Comparison of the Ziehl-Nielsen and the Moss Cold Carbol Fuchsin Stains for Acid Fast Bacilli. D. Kirsch and J. R. Schenk.—p. 394.
Dysmenorrhea. B. B. Weinstein.—p. 396.
The Male Sex Hormone: Its Use and Abuse. L. B. Sepiner.—p. 399.
Louisiana Statewide Serologic Evaluation Survey, 1942-1943. I. L. Schamberg.—p. 406.
Chailé Oration. J. A. Bacon.—p. 412.
The Limitations of Medical Education in Wartime. J. H. Mutter.—p. 414.

Ohio State Medical Journal, Columbus

40:101-196 (Feb.) 1944

- Note on Rehabilitation: Work as Therapy. J. Fetterman.—p. 117.
The Doctor's Heart. J. H. Musser.—p. 123.
Method for Repair of Finger Amputation. W. Kutler.—p. 126.
Nature and Clinical Use of Penicillin. J. P. Tucker.—p. 127.
*Critical Examination of the Factors Underlying Blood Donor Syncope and Their Bearing on Treatment of Surgical Shock. R. D. Barnard.—p. 130.

Report of Hospital Obstetrical Society of Ohio. L. B. Wylie.—p. 136.
Why Otolaryngologist Should be Allergy Minded. E. King.—p. 138.

Factors Underlying Blood Donor Syncope.—Barnard says that in the voluntary blood donor centers about 7 per cent of persons develop the syncope syndrome either before, during or after the bleeding. Bleeding is a psychologic rather than a physical incitant, as many donors will faint before the actual withdrawal of the blood. The syncope syndrome under these circumstances is indistinguishable from that evidenced after the withdrawal of a full pint of blood. Large persons from whom the withdrawal of a fixed quantity of blood represents a smaller fraction of the total blood volume show just as much tendency toward syncope as smaller persons. The predisposition to donor syncope is found most frequently in "vagotonics." The relatively high incidence of syncope reactions in the national blood donor centers over that which obtains among emergency donors is due to a disproportionately high percentage of a certain type of physically and psychologically constituted individual among the patrons of the former. The physical stigmas of vagotonic persons include an inadequate musculovenous mechanism and diminished skin capillarity which predisposes them to circulatory failure and collapse. The hormonal nature of the predisposing factors to syncope are analyzed and found to be comparable to those operating in surgical shock. The acetylcholine theory is in itself inadequate to account for all features, which, however, are explained by assuming the operation, in addition, of idiosyncratic nerve impulses. Nikethamide is the most effective single pharmacodynamic agent for the treatment of donor syncope. It is postulated that this efficacy may be due to a supposed ability of nikethamide to engender a choline esterase. As in the homologous condition of traumatic shock, sedation and psychotherapy play an important part in the treatment of donor syncope.

Pennsylvania Medical Journal, Harrisburg

47:545-640 (March) 1944

- New Developments in Industrial Dermatoses. L. Schwartz.—p. 559.
Pneumonia in General Practice. W. J. Stainsby.—p. 562.
Surgical Management of Acute Cholecystitis. D. B. Pfeiffer and F. M. S. Patterson.—p. 564.
Case Report of Bullous Lichen Planus with Recovery Following Use of Estrogenic Hormone. I. Zuger and P. P. Gross.—p. 571.
*Use of Blood Plasma Intraperitoneally in Treatment of Gastroenteritis in Infants. V. T. Curtin.—p. 575.
Vitamin C and Insulin Action. J. M. Rogoff, T. T. Sheppard, E. N. Nixon and Mary H. Green.—p. 579.
Certain Considerations in Treatment of Colles' Fracture. R. A. Deterling Jr.—p. 583.
Roentgen Diagnosis of Some of Lesions Adjacent to and Involving Diaphragm. E. P. Pendergrass.—p. 587.

Plasma Intraperitoneally in Gastroenteritis in Infants.

The difficulty of making blood transfusions in young infants induced Curtin and a collaborator to resort to the intraperitoneal introduction of blood. Frozen plasma was thawed out in warm water, withdrawn in a large syringe and injected into the peritoneal cavity in amounts of from 75 to 100 cc. More than one or two injections were rarely necessary. The "plasma lift" seems to keep the infant with gastritis going along until the proper food can be found and assimilated. Some 60 cases of acute gastroenteritis were treated. The intraperitoneal plasma injection was used with excellent results preceding and following operations for pyloric stenosis in infants with severe malnutrition and in 3 cases of severe hemorrhagic disease of the newborn. The use of blood plasma intraperitoneally in the treatment of gastroenteritis and allied conditions in infants is a therapeutic procedure of proved value, equal in all respects to the intravenous use of plasma. It is a simple procedure, applicable in the home as well as in the hospital, and in the treatment of shock, where it is impossible to transfuse intravenously. It is probable that the adult as well as the infant should benefit from the method.

Public Health Reports, Washington, D. C.

59:221-252 (Feb. 18) 1944

- I. Comparison of Light Trap and Animal Bait Trap Anopheline Mosquito Collections in Puerto Rico. II. List of Mosquitoes of Puerto Rico. A. E. Pritchard and H. D. Pratt.—p. 221.
Susceptibility of Golden Hamster, *Mesocricetus Auratus*, to Plague. Margaret C. McMahon.—p. 234.

59:253-280 (Feb. 25) 1944

- Index of Prevalence of Dental Caries in School Children. J. W. Knutson.—p. 253.

Review of Gastroenterology, New York

2:1-76 (Jan.-Feb.) 1944

- Diagnostic Advantages of Thorotrast. C. W. McClure, I. R. Jankelson and H. Osgood.—p. 17.
Use of Garlic (Allisatin) in Gastrointestinal Disturbances: Clinical Study. H. Barowsky and L. J. Boyd.—p. 22.
Fluoroscopic Signs of Posterior Wall Tumors of Stomach, Especially Those Signs Developed by Palpatory Pressure: Study. S. Jonas.—p. 27.
Notes on Military Medicine and Surgery Through Centuries. H. I. Goldstein.—p. 37.
Cholecystitis, Its Diagnosis and Treatment. E. Katz.—p. 44.

Rhode Island Medical Journal, Providence

27:49-100 (Feb.) 1944

- Practice of Oral Surgery by General Practitioner. H. S. Dunning.—p. 59.
Postwar Planning and Social Action. H. Finer.—p. 63.
Some Points in Laboratory Diagnosis of Malaria in the China-India-Burma Theater. I. A. Beck.—p. 65.

Rocky Mountain Medical Journal, Denver

41:1-72 (Jan.) 1944

- Flight Surgeon Looks at War. E. C. Reinartz.—p. 20.
Management of Acute Head Injuries. M. T. Schnitker.—p. 27.
Diarrhea. F. B. Bailey.—p. 32.
Improved Rectal Binder. A. J. Chisholm.—p. 34.

41:73-144 (Feb.) 1944

- Chest Injuries. W. R. Rumel.—p. 90.
Common Diseases and Their Treatment in Army Hospitals. V. R. Mason and W. J. Mitchell.—p. 96.
Surgical Shock. C. S. Roof.—p. 100.
Colorado Tick Fever. E. R. Mudge, L. Florio and Mabel O. Stewart.—p. 103.
Obstetrics, Stepchild of Surgery. C. Powell.—p. 105.

41:145-224 (March) 1944

- Psychiatric Problems in Military Service. L. Barbato.—p. 163.
*Rheumatic Pneumonia. K. T. Neubeurger and E. F. Geever.—p. 167.
"Is There Need for Radical Changes in Our Current System of Medical Service?" J. W. Ames.—p. 169.
United Public Health League. J. S. Bouslog.—p. 173.
Acute Monocytic Leukemia: Case Report. H. J. Dodge, W. C. Black and E. R. Mudge.—p. 177.

Rheumatic Pneumonia.—Neubeurger and Geever made pathologic studies on 63 cases of active and quiescent rheumatic fever. In this group, 8 cases showed distinctive microscopic pulmonary changes. Sixty cases were used as controls, including various forms of acute pneumonia, organizing pneumonia and chronic passive congestion. On gross examination the lungs showed an increase in weight and areas of lobular, occasionally confluent, consolidation, with purplish red, sometimes granular congestion on the cut surface. Alterations in consistency, such as the "rubbery lung" mentioned by others, were not a striking feature. Microscopic examination revealed fibrinous exudation, focal fibrinoid necrosis of the alveolar walls with alveolitis, arteriolitis, mononuclear exudate, proliferation of the septal cells in the alveolar walls and peculiar granulomas ("Masson bodies") in the alveolar ducts and alveoli. Many of the lesions, in particular the focal fibrinoid necrosis and the arteriolitis, were consistent with the changes found in rheumatic infections in general. Bacteriologic studies failed to yield positive results. Some microscopic features, particularly the mononuclear cellular exudate, the septal cell stimulation and the vascular damage, were suggestive of virus etiology. From the observations on the 8 cases of rheumatic fever which showed distinctive microscopic pulmonary changes the authors conclude that rheumatic lung involvement may occur.

Surgery, St. Louis

15:211-366 (Feb.) 1944

- Surgical Care of Wounded in United States Army. N. T. Kirk.—p. 211.
- *Plastic Repair of Scar Contractures. P. W. Greeley.—p. 224.
- *Epithelization as Affected by Nickel Pectinate and Other Agents. J. E. Hamilton.—p. 242.
- Plasma Clot Suture of Nerves: Illustrated Technic. I. M. Tarlov.—p. 257.
- *Tendon Transplants with Metal Nails. R. Sutherland and M. J. Rowe Jr.—p. 270.
- Treatment of Intertrochanteric Fractures of Femur. W. G. Stuck.—p. 275.
- Hepatitis in Infancy and Childhood: Discussion and Report of Patient Treated by Operation. G. B. Packard and A. W. Stevenson.—p. 292.
- Comments on Ileocolostomy and Intestinal Exclusion. J. H. Eckel and C. Holman.—p. 307.
- Torula Infection: Review and Report of 4 Cases. R. E. Burger and C. B. Morton.—p. 312.
- A "Lucite" Gastrostomy Tube for Pouch Dogs and Possibilities for Applications in Man. K. A. Merendino and S. S. Litow.—p. 326.

Plastic Repair of Scar Contractures.—Greeley maintains that by far the greater majority of contractures result from cutaneous defects that follow improperly managed third degree burns. Likewise, if cutaneous loss after a large avulsion is not covered early with a skin graft, the scar resulting from the closure of the wound by secondary intention may contract in the same manner as that following third degree burns. The scars which create these conditions are found chiefly around kinetic areas, such as the eyelids, mouth, neck, axillae and the extremities. The early covering of cutaneous defects is the ideal procedure. Linear lacerations on flexor surfaces such as the fingers may tend to develop contractures after healing occurs, owing to the straight line scar. This can often be obviated by the construction of one or more Z flaps at the time of primary closure, which produce a staggered instead of a straight scar. It is futile to attempt to prevent scar contractures by traction or splinting in either early or late stages unless provision is made to eliminate the offending scar. Temporary improvement might be obtained, but, owing to the fact that all scar tissue tends to contract, the extended parts will promptly revert to their original malposition as soon as the traction or splinting is removed. Scar contractures can be relieved by excision of all shortened fibrotic tissue, after which the parts are extended into normal anatomic position. The resulting cutaneous defects are then closed by the use of a Z plastic procedure or the utilization of a properly selected type of skin graft. Chronic ulcerations occurring in certain contractures should be repaired promptly for fear of secondary malignant changes.

Epithelization as Affected by Nickel Pectinate.—Hamilton treated wounds with a preparation of nickel pectinate containing 3 per cent pectin and 0.045 per cent nickel, either in aqueous solution or in tragacanth jelly. Merthiolate 1:5,000 was added to inhibit growth of fungi. After the toilet of the wound, the jelly was applied to a depth of 3 to 5 mm. Sixty-five wounds in 61 patients were dressed with nickel pectinate, and, as controls, 34 comparable wounds in 31 patients were treated with various bland agents, chiefly cod liver oil or ointment. Controlled experiments on wound healing were carried out on 6 rabbits. A control method was employed in 22 cases in which larger wounds nearly uniform throughout were divided into two comparable areas, the one dressed with the experimental agent, the other with the control. Contrary to the prevailing opinion, the author found that nickel pectinate does not promote wound healing but instead depresses granulation tissue proliferation. By virtue of its property of keeping down "proud flesh," nickel pectinate indirectly exerts a definite acceleration of epithelization. There was a 22 per cent reduction in healing time over such control agents as cod liver oil or foille. Hence it is contraindicated in the early stages of wound healing but is an ideal dressing where epithelization is sought. Nickel pectinate is mildly antiseptic. Compared with cod liver oil ointment it causes greater reduction in wound exudation and a reduction of the colony count. Nickel pectinate is hemostatic to a certain point in that it condenses and renders less vascular granulation tissue with which it comes in contact.

Tendon Transplants with Metal Nails.—Sutherland and Rowe list the following causes of the failure of tendons to work satisfactorily in their new positions: (1) fibrosis and fixation in the sheath during the long period of immobilization necessary for the bone attachment to become firm, (2) stretching of the healing area when sutured to soft tissue, with resultant loss of efficiency and muscle tone, and (3) stretching at the point of bone insertion of a tendon weakened by long immobilization. In a tendon transplanted and fixed to an area so that exercise and function can be begun early during the healing process, the formation of intrathecal adhesions and the loss of muscle tonus is avoided. Such a surgical transplantation of a tendon can be done simply by use of a metal nail fixation of the transplant to firm bone and early institution of function without external cast immobilization. This technic has been used successfully in lateral transposition of the anterior tibial tendon in talipes equinovarus and in replacement of the tibial tubercle with attached patellar tendon after operations on the knee joint. Reattachment of the medial epicondyle of the humerus and the medial malleolus of the tibia has been satisfactory in recent traumatic injuries. Reattachment of the trochanter of the femur after approach to the hip joint and distal transposition of the trochanter to increase abductor efficiency are also practical. Screws have not been as satisfactory as nails in this work.

Surgery, Gynecology and Obstetrics, Chicago

78:225-336 (March) 1944

- Abdominal Wounds in Western Desert. W. H. Ogilvie.—p. 225.
- Exposure of Recurrent Laryngeal Nerves in Thyroid Operations: Further Experiences. F. H. Lahey.—p. 239.
- *Determination and Treatment of Pressure Cavities in Pulmonary Tuberculosis. A. M. Vineberg and W. E. Kunstler.—p. 245.
- Further Observations on Surgery of Large Arteries. E. Holman.—p. 275.
- Surgery of Congenital Anomalous Kidney. B. S. Abeshouse.—p. 288.
- *Carcinoma of Rectum: Conclusions Based on Twelve Years' Experience with Combined Abdominoperineal Resection. F. A. Collier and H. K. Ransom.—p. 304.
- Prolonged Intubation Suction and Deferred or Delayed Surgery in Treatment of Multiple Adhesive Obstructions of Small Intestine. K. S. Grimson.—p. 316.
- Pectin Solutions in Treatment of Shock. K. A. Meyer, D. D. Kozoll, H. Popper and F. Steigmann.—p. 327.
- Sulfanilamide Absorption Via Rectum and Vagina. G. L. Carrington, T. Rohrer, Elsie Jones and Phyllis Moore.—p. 333.

Pressure Cavities in Pulmonary Tuberculosis.—Vineberg and Kunstler report extensive studies on the problem of pressure cavities. They show that a large percentage of pulmonary tuberculous cavities are tension cavities and rarely close with thoracoplasty. Some residual cavities are tension cavities which are unaffected by thoracoplasty. The detection of tension cavities can be made only by needling of the cavity and recording of the intracavitary pressures. Transthoracic intracavitary suction drainage is recommended only for tension cavities. The authors describe a new technic and instruments for needling and draining tension cavities. In 150 instances cavities were needled and 27 cavities were drained without a single complication of hemorrhage, pleural empyema, spontaneous pneumothorax or air embolism. Intracavitary suction drainage will reduce large tension cavities to the size of a catheter; but to obtain permanent closure a partial thoracoplasty is essential. In giant positive pressure cavities anterior stage thoracoplasty precedes suction drainage and the latter is followed by posterior stage thoracoplasty. Negative pressure giant cavities close readily with thoracoplasty. By the use of a combination of transthoracic intracavitary suction drainage and thoracoplasty the ideal of collapse therapy is attained, namely a maximum collapse of diseased areas with a minimum of damage to normal lung parenchyma.

Carcinoma of Rectum: Combined Abdominoperineal Resection.—Collier and Ransom report conclusions based on twelve years' experience with combined abdominoperineal resection. The principles enunciated by Miles make abdominoperineal resection the only logical procedure. In 1936 the authors published the results obtained during a period of five years on 270 patients. The present report is concerned with the group of

patients with cancer of the rectum and rectosigmoid observed during the 6½ year period from Jan. 1, 1936 to July 1, 1942. During this time 571 patients were seen. In comparing the present series with the series previously reported the authors find definite, although not striking, improvement on several scores. The operability has increased as the result of earlier diagnosis and an extension of the limits of operability in cases in which the disease is more advanced. The latter has become possible because of standardization of the operative procedure and improvement in preoperative and postoperative management. The operative mortality has been lowered in spite of greater operability. Surgery remains the mainstay in the treatment of cancer of the rectum and rectosigmoid, and all methods other than radical removal of the diseased tissues may be expected to result in a high percentage of recurrences. In some patients unfit for radical procedures because of physical defects, operations less comprehensive in their scope continue to have a place. Surgical diathermy, x-rays and radium are to be regarded as palliative treatments. For most patients the one stage combined abdominoperineal resection is the procedure of choice. It seems improbable that great improvement in the future can be expected from more radical operations on patients with far advanced or incurable disease but that better results will come mostly from earlier diagnosis and earlier treatment and from a better understanding of and consequently the prevention and better management of such postoperative complications as pulmonary embolism, wound sepsis and complications arising in the genitourinary tract.

Virginia Medical Monthly, Richmond

71:113-172 (March) 1944

- Medical College of Virginia and Medical Services in Virginia. J. P. Gray.—p. 114.
Map of Chimborazo General Hospital, C. S. A. as It Appeared July 6, 1862. S. Smith.—p. 118.
Syndrome of Cervical Root Compression and Brachial Neuritis Following Lateral Herniation of Intervertebral Disk, with Comment on Central Midline Protrusions. J. L. Ulmer and J. M. Meredith.—p. 119.
Review of Recent Experimental Work on Peripheral Nerve Injuries. E. Fischer.—p. 125.
Case of Morvan's Type of Syringomyelia. N. Bloom and L. J. Moss.—p. 131.
Structure and Function of Mammalian Cerebral Cortex at Time of Birth. W. Riese.—p. 134.
Pelvic Pain: Its Anatomic and Surgical Aspects in Gynecology. R. H. Hoge.—p. 140.
Anencephaly with Antenatal Roentgen Diagnosis in Three Cases. W. C. Winn, H. H. Ware Jr. and F. B. Mandeville.—p. 145.
Chronic Osteomyelitis of Petrous Pyramid with Extensive Extradural Abscess and Spontaneous Decompression. P. N. Pastore and J. M. Meredith.—p. 149.
Effect of Food on Liver Fat of Animals Following Carbon Tetrachloride Poisoning. G. H. Dillard, H. Y. Spence and J. C. Forbes.—p. 154.
Gingival Hyperplasia Associated with Diphenyl-Hydantoin Therapy. C. F. Vallotton.—p. 159.

Cervical Root Compression and Brachial Neuritis Following Herniation of Intervertebral Disk.—Ulmer and Meredith present 3 cases of protruded cervical intervertebral disk and the associated neurologic symptoms. The first 2 cases are examples of nerve root compression producing unilateral brachial neuritis alone without cord involvement; the third case is that of a massive central protrusion producing complete paraplegia and subarachnoid block. In the lateral protrusions the exact location of the lesion in the cervical spine is determined more by clinical examination than by myelography. The clinician must avoid the error of overlooking lesions of the cervical spine (undiagnosed protruded intervertebral disk) as causative factors in the scalene neurocirculatory compression syndrome. Relief of such symptoms can be achieved only by effective treatment of the cervical spine lesion rather than by section of the scalene tendon. It is suggested that x-ray examination of the cervical spine be made in all cases of the scalene syndrome (brachial neuritis) in order to avoid such an error in diagnosis and treatment, just as films should always be made of the lumbosacral spine in every case of sciatica. Postoperative relief of symptoms should be excellent in all patients with cervical laterally placed protruded intervertebral disks (brachial neuritis alone) removed by means of a hemilaminectomy. When the disk compresses the cervical cord itself to the extent of producing a complete paraplegia, complete relief is scarcely to be expected.

War Medicine, Chicago

5:71-128 (Feb.) 1944

- *Bacteria and "Toxic Factor" in Shock. J. C. Aub, A. M. Brues, R. Dubos, S. S. Kety, I. T. Nathanson, A. Pope and P. C. Zamecnik.—p. 71.
*Pathogenesis and Treatment of Shock Resulting from Crushing of Muscle. M. Prinzmetal, S. C. Freed and H. E. Kruger.—p. 74.
Experiences with Use of Thrombin With and Without Soluble Cellulose For Local Hemostasis. E. P. Cronkite, J. M. Deaver and E. L. Lozner.—p. 80.
Factors in Adjustment to Army Life: Plan for Preventive Psychiatry by Mass Psychotherapy. R. R. Cohen.—p. 83.
Medical History of World War II. A. S. MacNalty.—p. 92.
Mumps in Army Camps in 1943. A. C. McGuinness and E. A. Gall.—p. 95.
Early Form of Chronic Bronchitis in Panama. A. G. Cohen.—p. 105.
Occupational-Recreational Programs in Neuropsychiatric Sections of Army Station Hospitals. N. R. Shulack.—p. 109.

Bacteria and the "Toxic Factor" in Shock.—Aub and his collaborators investigated the possible elaboration of shock-producing toxic materials in anoxic muscle. The fluid exuding from dogs' muscles after their blood supply had been shut off for five hours was injected intravenously into other dogs. In 9 of 32 such experiments the fluid was toxic and produced manifestations of shock, usually fatal. In spite of aseptic surgical precautions these fluids were always contaminated. There are reasons for believing that the inconstant toxic factor in these fluids was bacterial in origin. Anoxic muscle in vivo is an excellent milieu for growth and toxin formation of organisms of the gas gangrene group, and these anaerobes either exist normally in dogs' muscles or else are introduced readily with traumatizing procedures. These potent toxins, in addition to their general effects on the circulation, could be a factor in the production of shock through local loss of fluid at the site of bacterial growth. Immunity to traumatic shock may depend on bacteriologic immunization. The beneficial effects of local cooling would also be compatible with a bacterial factor in the development of shock following traumatizing procedures. The vast majority of war wounds are contaminated with bacteria from the outset. Recent reports have indicated the presence of clostridia and of other organisms in a high percentage of war wounds. Toxic products from bacteria have been shown to produce some of the manifestations of shock and can produce local loss of fluid even with adequate blood flow. It is therefore conceivable that even subclinical amounts of infection may result in the development of sufficient toxin to be of etiologic significance, acting either in addition to the well established factor of loss of vascular fluid or as a means of accentuating it.

Shock Resulting from Crushing of Muscle.—Prinzmetal and his associates show that shock can be produced in dogs by a muscle-crushing procedure with minimal loss of blood. The shock thus produced has been proved to be due to the systemic absorption of toxic substances. It has been shown that shock develops if local accumulation of fluid is prevented by plaster casts and, further, in animals without casts there is insufficient local loss of fluid to account for the death of the animals. It has been shown also that the shock is not due to the so-called neurogenic factor. The toxic shock-producing substances are produced in the crushed muscle, because débridement, if performed earlier than seventeen hours after trauma, prevents or ameliorates the shocklike state and if performed after twenty-four hours seems to be ineffective, and after animals have been saved by early débridement the reinsertion of the debrided crushed muscle into the opposite, control leg regularly produces shock. The toxic factor in crushed muscle is a direct result of bacteria, since in all experiments the crushed muscle contained large quantities of a wide variety of bacteria in spite of rigid surgical aseptic technic, and shock did not occur when the animals were treated with certain antibacterial agents. It appears that there are at least two types of shock due to injury to tissue: (a) an acute form occurring in a relatively few hours, which is mainly due to local accumulation or loss of fluid, and (b) a more chronic type, in which the shock is due to the systemic absorption of toxic substances, bacterial in origin, produced in the crushed muscle. Although plaster casts may be of value in the prevention of the acute type of shock, they are without effect for toxic shock, the treatment of which should include early débridement and the use of antibacterial agents.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British J. Children's Diseases, Dorking, England

40:93-126 (Oct.-Dec.) 1943

Heart Block in Diphtheria. C. Neubauer.—p. 93.

Macro- and Microglanular Caseation in Primary Tuberculosis in Children. E. Engel.—p. 104.

Journal of Royal Army Medical Corps, London

82:1-50 (Jan.) 1944

*Chronic Melioidosis: Case Showing Bone and Pulmonary Lesions. J. H. Mayer and M. H. Finlayson.—p. 4.

Notes on an Improvised Nasal Oxygen Apparatus. W. A. Robinson.—p. 14.

Simple Artificial Respirator. P. W. Nathan.—p. 22.

Two Cases of Leptospirosis Icterohemorrhagica (Weill's Disease). A. Willcox.—p. 26.

*Vertebral and Sacroiliac Strain in Soldier. E. G. Fleming.—p. 30.
Importance of Otologic Examination in Head Injuries, Including Reference to Its Relation to Radiologic Investigation. R. B. Lumsden and J. A. C. Fleming.—p. 33.

Chronic Melioidosis.—Mayer and Finlayson report a case remarkable for its insidious onset, its great chronicity, its resemblance to pulmonary and articular tuberculosis and the multiplicity of lesions. The patient was a soldier who was 33 years of age when the illness started; it was originally diagnosed as spondylitis ankylopoietica and later as pulmonary and articular tuberculosis, but not until two and three-fourths years after the onset of the illness was the organism isolated which could be considered the specific etiologic factor. This organism was found to resemble *Pfeifferella whitmori* in almost every respect, but whereas all descriptions of *P. whitmori* state that it possesses no acid fast properties, the organism isolated in this case shows beads or granules which are resistant to decolorization by 2.5 per cent sulfuric acid or 10 per cent acetic acid acting for five minutes. It is of interest to speculate on the possible relationship of the acid fast properties of this strain to the chronicity of the lesions and their clinical resemblance to tuberculous lesions. However, the strain produces the acute granulomatous lesions in rodents which have been described as characteristic for *P. whitmori*. Melioidosis is a disease of rodents and men. The majority of cases previously recorded have occurred in natives. Of the chronic cases recorded, Grant and Barwell's (1943) is the only previous one reported in a European and was also unusually chronic. It is possible that Europeans possess greater resistance than Asiatics to infection with *P. whitmori* and that in them the condition may resemble the chronic granulomas. Cases of chronic melioidosis may occur in European troops campaigning in the areas in which the disease is endemic and may be mistaken for pulmonary or articular tuberculosis. The development of chronic granulomatous lesions in persons who have lived in the Far East should invite the possibility that the infection may be chronic melioidosis, and all possible steps should be taken to exclude this diagnosis before a definite and final diagnosis of tuberculous infection is made.

Vertebral and Sacroiliac Strain in Soldiers.—According to Fleming, lower lumbar and sacroiliac pain are common complaints in soldiers. The pain is found to have been initiated as the result of some considerable physical strain. The man may have been cranking a Diesel engine or lifting a heavy weight. In mild cases the usual procedure is to recommend a few good liniment rubs and hope that the counterirritation and physical stimulation may have the effect of relaxing a slight muscular spasm. If removal of the symptoms does not take place within a few days, the soldier is transferred to a hospital. Patients who give a history of strain may be placed in three classes. Those in which (1) the erector spinae has been strained with the possible rupture of some muscle fibers, (2) the lumbar spine has been rotated on the sacrum to such an extent that it has remained in a state of semisubluxation and (3) one or other of the ilia has become rotated on the sacrum posteriorly and has similarly remained in a state of semisubluxation. The cases which come under the second and third classes give a history of physical strain, limitation of spinal movement in one or all

directions, tenderness and rigidity of the erector spinae on the affected side, and more pronounced tenderness immediately to one side or the other of the spinous process of the 5th lumbar vertebra or over the sacroiliac articulation on either side. In the case reported it was decided to resort to manipulation of the lower lumbar spine. After the manipulation the patient immediately pronounced himself fit. During the manipulation, with a synchronization of movement, three forces are applied. The patient's left shoulder is forced backward by the left hand, the lumbar spine is pulled forward by the fingers of the right hand and at the same time the operator's right knee presses down the patient's left thigh. These three forces, which must be made simultaneously, have the effect of rotating the lumbar spine on the sacrum in the desired direction. The author also mentions a case of sacroiliac strain which also was treated by manipulation. He thinks that the incidence of similar cases is probably much more common than is usually recognized.

Praxis, Bern

32:513-534 (July 15) 1943

Experiences and Late Results with Transurethral Electrossection of Prostate. H. Heusser and G. Reimann-Hunziker.—p. 513.

*Adrenal Preparation in Treatment of Gastroduodenal Ulcer. M. Demole and P. Guye.—p. 517.

*Primary Tuberculous Infection of Adults and Renal Tuberculosis. H. U. Gloor.—p. 519.

Adrenal Preparation in Treatment of Gastroduodenal Ulcer.—Demole and Guye used the synthetic adrenal hormone desoxycorticosterone in the treatment of about 40 patients with ulcer. They found that the pain disappears after the second or third injection, even in patients who had been resistant to ordinary treatment. The characteristic x-ray appearance is completely altered in fifteen or more days. Stools become negative for blood, but the gastric chemism seems little influenced. Only 1 of the patients failed to respond to the action of desoxycorticosterone. There are no serious contraindications. Variations in blood pressure do not exceed physiologic limits. Edema, which develops in some patients, disappears when the medication is discontinued. The late results of desoxycorticosterone therapy are not as favorable as the immediate effects, particularly in the chronic cases. There was only 1 permanent result among 11 patients with old ulcers. Of 10 patients who had the ulcer for less than a year, 8 were permanently cured. In general a relapse follows after from four to ten months in more than half of the patients. Desoxycorticosterone provides a valuable therapeutic proof in differentiating suspected roentgenograms. If the ulcer niche disappears under the influence of desoxycorticosterone the lesion is benign, but if it persists in spite of the absence of subjective symptoms malignant transformation must be suspected. Desoxycorticosterone probably corrects a glandular deficiency. The therapy is particularly indicated for hypotensive, asthenic or pigmented patients to counteract the slight adrenal insufficiency.

Primary Tuberculous Infection of Adults and Renal Tuberculosis.—Gloor cites statistical evidence to the effect that late primary infection has increased and that a large percentage of tuberculous infections during the postpuberal period are really primary infections. The character of the postprimary hematogenic dissemination differs in adults from that in children. In adults foci are produced particularly in the bones, joints and the genitourinary system. The formation of extrapulmonary foci may escape detection for years. Intrarenal foci particularly may remain unrecognized for eight to ten years until they perforate into the discharging urinary passages. The author raises the question whether it might not be advisable to resort during every hematogenic dissemination to the administration of antituberculosis remedies such as sodium gold thiosulfate and trimethyldioxotritan. The treatment with these substances should not be postponed until a tuberculous bone fistula or a specific renal focus has been demonstrated but should begin immediately after a postprimary exudative pleurisy, because these pleurisies constitute the first manifestation of hematogenic dissemination frequently followed by tuberculosis of bones or kidneys. Even patients who have recovered from pleurisy should be subjected for years to periodic control examinations. Careful chemical and microscopic examination of the urine are indispensable.

Book Notices

Office Treatment of the Nose, Throat and Ear. By Abraham R. Hollender, M.Sc., M.D., F.A.C.S., Associate Professor of Laryngology, Rhinology and Otolaryngology, University of Illinois College of Medicine, Chicago. Cloth. Price, \$5. Pp. 480, with illustrations. Chicago: Year Book Publishers, Inc., 1943.

The author has undertaken to write a complete textbook on the office treatment of diseases of the ear, nose and throat. This is a large field, and he who attempts to do it well must be possessed of much knowledge, discrimination and judgment. There is the disputable, there is the new which has not yet been thoroughly tested and there is the old which has yet not been completely discarded. The author has finally to take into account his own prejudices. To say after careful perusal that this is merely a good book would be to do it less than justice. The task has been unusually well done. Here are nearly five hundred closely packed pages, written in a clear and engaging style and clarified by numerous interesting and in large part original illustrations. The author proceeds from a beginning entitled "A General Survey" in which he evaluates office treatment in this field to discussions on immunization, endocrinotherapy, nutritional management, pharmacotherapy, physical therapy, office surgery and radio therapy to go on systematically to the diseases of the external nose, the paranasal sinuses, the mouth, the pharynx, the larynx and the ear. He ends with a chapter on the nervous disorders treating primarily of facial paralysis and the neuralgias of this area. It has long been felt that a great need existed for an authoritative statement devoted to office management of diseases of the ear, nose and throat. This volume should fill that need for a long time to come.

Health and Hygiene: A Comprehensive Study of Disease Prevention and Health Promotion. By Lloyd Ackerman. Cloth. Price, \$5. Pp. 895, with 59 illustrations. Lancaster, Pa.: Jaques Cattell Press, 1943.

Dr. Ackerman has departed from tradition and has written a book for the intelligent layman. The text is prepared for a reader in normal health who wishes to maintain his health during the productive period of his life. The text is also intended for the college student who is being prepared for an effective life. Thus emphasis has been placed on the subjects with which the normal individual is concerned and over which he has some degree of control. It is noteworthy that about 20 per cent of the book is devoted to mental hygiene: the nature of nervous activity, kinds of attitudes, conflicts and modes of adjustment, and the prevention of mental disorders and the promotion of health. Here, as elsewhere, stress is laid on the importance of objective attitudes.

It is this objective attitude which the author himself has maintained throughout the text. He has avoided pedagogy, preferring to use qualifying adverbs rather than final statements. This encourages the reader to be open minded, in accord with the present organismal concept of medicine, which recognizes that health is concerned with the whole organism and its total environment throughout life at the four interrelated levels of activity: physical, mental, social and spiritual.

As the historical approach is the most objective, a relatively large number of pages are devoted to the evolution of hygiene in the light of cultural development, hygienic trends and general methods of evaluating health concepts. Included in this part is basic information on vital statistics and a classification of the causes of health and disease. This prepares the reader for an objective approach to the material which follows, which is a detailed study of the more basic factors in their relation to health and disease. Approximately 20 per cent of the book (the same amount as devoted to mental hygiene) is devoted to material on infection, resistance, hypersensitiveness and disease transmission. Nutrition and matters relating to sexual phenomena each occupy about 10 per cent of the total book, and the remaining 30 per cent is divided between oral hygiene, poisons, accidents and injuries and the effect of heat, light and sound on health.

The author does not discuss community organization in promotion of the public health. Every educated man should be familiar with community facilities and responsibilities in health promotion. He should know whether or not his town or state has a good progressive health department and should assume leadership in the community affairs relating to this field. The

reviewer believes that the book would be stronger and more effective if a chapter was included which discussed administration of public health and the relationship of the organized voluntary and official agencies in promotion of the health of the individual.

Dr. Ackerman has skilfully and successfully coordinated authoritative sources, so that the reader has an over-all picture of the complex subject of health and hygiene.

The Canned Food Reference Manual: A Publication of the American Can Company Research Department. Roger H. Lueck, Director. Second edition. Cloth. Pp. 552, with illustrations. New York: American Can Company, 1943.

The second edition of this most useful book has been generally expanded to contain additional nutritional information and data commensurate with the strides made in this field since the publication of the first edition. The book is intended as a manual to provide factual information on foods, and it does so without limitation to canned foods as the title would imply. The forepart of the volume describes production of the modern metal food container and the processing of the food which goes into it. There follows a discussion of human nutrition touching briefly on all the salient points of present day knowledge of the human nutrition. Particular attention is given the vitamins, with sections on their chemical composition, methods of estimation in foods, effects of their lack in the body and recommended daily allowances. All the nutritional information is concisely presented and the commendable attitude taken that these facts represent the present status of knowledge, which is undoubtedly incomplete as yet. Being a canned food manual, the book understandably extols the merits of canned foods and the contribution they make to the diet. Comparison between commercially canned foods and those home cooked shows the advantages of commercial methods in certain respects. Many of the often asked questions pertaining to the use of canned foods are answered here, and in addition suggestions for the most effective use of these foods are offered. The fact that most canned foods need no further cooking, only heating, and that the liquid on canned peas for example may contain actually more vitamins than the solid food within the can is well worth knowing. In the latter portion of the book are found extensive tables which give the nutritional values of canned foods as well as of many fresh foods. Particularly useful are the data on the vitamin and mineral content of a great variety of foods. Other tables showing the purine content as well as the oxalic, malic and citric acid contents of foods are of interest to those concerned with selecting foods for special purposes. Altogether this book serves as a quite adequate source of reference for information on nutritional facts and food composition.

Synopsis of Materia Medica, Toxicology, and Pharmacology for Students and Practitioners of Medicine. By Forrest Ramon Davison, B.A., M.Sc., Ph.D. Third edition. Fabrikoid. Price, \$6.50. Pp. 759, with 40 illustrations. St. Louis: C. V. Mosby Company, 1944.

The author of this book is lamentably failing to keep his material up to date despite the fact that he has had the unusual opportunity of offering a new edition every two years. Furthermore, in writing of matters in fields in which he obviously has no intimate knowledge, as all textbook authors must, he seems oftentimes not to have taken the trouble to acquaint himself with even the rudiments of the subject under consideration. Since the necessity to incorporate the new things in chemotherapy is stated in the preface to be one of the reasons for the early appearance of the present edition, the author of this review believes it not unfair to list as his sole specific criticism of the book some of the omissions, misstatements and misunderstandings found in this department. 1. There are forty-four pages on antiseptics and disinfectants in which all the changes are wrung on the old familiar agents, but there is not a single mention of the local use in wounds of sulfanilamide powder, powdered proflavine, propamidine, penicillin or gramicidin. To be sure, the local employment of some of these agents is discussed elsewhere, but failure to rebuild the consideration of the antiseptics around these new drugs and methods marks the section as obsolete. 2. There are a couple of pages on intestinal disinfectants, among which sulfaguandine and sulfasuxidine are listed, with the reader referred to another chapter for further discussion; but there is also hardly the amazing statement "Apparently the best way to kill off the flora of the intestine

is to replace it by a different flora, such as that furnished by the administration of *Bacillus bulgaricus* and *Bacillus acidophilus*—this at a time when there is already abundant evidence that succinylsulfathiazole (sulfasuxidine) can destroy the flora so thoroughly that even vitamin K synthesis is stopped! 3. Among the amebicidal agents two of the older iodoxyquinolines, vioform and chiniofon, are mentioned but there is not a word about diodoquin, which has made a deserved place for itself in recent years. 4. There is an obvious failure to appreciate the important place which mapharsen has acquired and the reasons for the same. 5. Account is not given of the new "quick" treatment methods in syphilis despite the important implications of these methods for the whole of chemotherapy. 6. On page 542 there is a fallacious definition of the Herxheimer reaction. 7. One of the "most important uses of antimony compounds" is alleged to be in trypanosomiasis, an error which is compounded by complete failure to mention the diamidines, which for several years have been improving their position in the therapy of this disease. Incidentally, in this same discussion the statement is made that kala-azar occurs in the United States. 8. Each of the sentences in the following paragraph on penicillin (p. 664) is either fallacious or fails to make sense: "Absorption from the duodenum is rapid following enteral administration and slow following oral and rectal doses. The amount excreted in the urine following oral, intraduodenal and rectal administration is small. In the presence of renal failure penicillin is slowly excreted, resulting in high blood concentration after intravenous injection. Human saliva, bile and succus entericus do not inactivate bile, but gastric juice destroys it rapidly, apparently due to its acidity." The absurdity in the last sentence is doubtless due merely to misprint, as is probably true of the statement on the same page "It is activated by oxidation and by evaporation at 40° to 50° C., in acid and alkaline solutions." 9. The following unsupported statement is made regarding quinine (p. 688): "Regardless of the mechanism of its action, quinine cures the acute symptoms by depressing multiplication of plasmodia in the body and stimulating some of the parasites to change to the sexual form which cannot cause the disease in man." 10. It is said that the old fashioned eight weeks treatment of malaria is recommended by the highest authorities and that such treatment usually results in permanent cure—both of which statements are unfounded. Short course therapy is later mentioned but without intimation that its importance is appreciated. There is also tucked in about here the following sentence (p. 690), which betrays a superficial knowledge of the literature of antimalarial agents: "Occasionally a resistant strain is encountered; this condition is usually cleared up by intravenous injection of quinine." 11. The following statement regarding plasmochin (pamaquine naphthoate) is untrue (p. 692): "It therefore is an adjuvant of great value in endemic areas where it is desirable to prevent infection of mosquitoes." And the following, on the same drug, reveals a very confused understanding of the subject (p. 692): "It does not kill sporozoites and is relatively ineffective on the trophozoites or growing forms, especially of the *Plasmodium vivax* of tertian and subtertian malaria." 12. Regarding atabrine (quinacrine hydrochloride), whose superiority to quinine has been so well demonstrated in the present war that it has long been the preferred drug in all branches of our armed forces, the following statement is made (p. 693): "There seems to be much greater toxicity with this compound than with quinine, and its use is indicated only under unusual epidemic conditions."

This book cannot be recommended.

A Text-Book of Pathology. Edited by E. T. Bell, M.D., Professor of Pathology in the University of Minnesota, Minneapolis, Minn. Fifth edition. Cloth. Price, \$9.50. Pp. 862, with 452 illustrations. Philadelphia: Lea & Febiger, 1944.

New developments in diagnosis and treatment of disease have greatly modified considerations of pathology. Thus these textbooks, like others, must be constantly revised in order to keep up to date. In this new edition of Bell's excellent work are found discussions of shock, vitamin deficiencies, blast injuries and various infectious diseases in the field of war medicine. Many new illustrations have been added and some old ones eliminated. The various sections of the volume are divided among the authors, but careful planning has made the work a succinct and useful textbook.

A Textbook of Pathology: General and Special for the Use of Students and Practitioners. By J. Martin Beattie, M.A., M.D., D.Sc., and W. E. Carnegie Dickson, M.D., B.Sc., F.R.C.P., Director of the Pathological Department, West End Hospital for Nervous Diseases, London. With the collaboration of A. Murray Drennan, M.D., F.R.C.P., F.R.S.E., Professor of Pathology in the University of Edinburgh, and John O. Oliver, M.D., B.S., M.R.C.S., Assistant Pathologist, St. Thomas's Hospital, London. Fourth edition. Cloth. Price, 84s. Pp. 1,368, with 827 illustrations. London: William Heinemann, Ltd., 1943.

To the student, pathology is the first introduction to the effects of disease, and he approaches it eagerly. He finds much of it dull because of the myriads of new terms and the drab descriptions of actually fascinating conditions. This tendency to submerge a subject in a mass of words is too frequently encountered in modern medical writing. One needs only to recall the simple words in which Parkinson described palsy or Paget described breast cancer to realize that clinical and pathologic manifestations of the ills of mankind can be couched in English which is kin to the best of prose. From a purely literary point of view there are features in this book which are highly commendable. The language is choice, and the origin of terms peculiar to pathology is indicated. Thus when the novice learns that the word infarction means to cram he has a better understanding of why Virchow chose this word.

There is a tendency, which seems better defined in English publications, to retain outmoded and meaningless terms. Nowhere is this better illustrated than in the classification of tumors. The classification used in this textbook possesses definite advantages in that it is simple and based on the original embryonic layers. The term rind-cell carcinoma is used for all tumors arising from lining cells whether they are of ectodermal or of endodermal origin. This is an oversimplification, no doubt, and lumps together tumors which hardly belong in the same category. The actual description of the tumors with the variation in cell and content is replete with somewhat outmoded terms and is based on morphologic variations which deserve less emphasis than they have received in the past. The surgeon of today is demanding a more dynamic approach to the classification of tumors. He wants to know What kind of a tumor? Is it radiosensitive? Is it malignant? How malignant? And, if possible, he would like this information in the operating room.

The reappearance of this book, which represents teaching at the University of Edinburgh, is a tribute to the tenacity and vitality of the Edinburgh faculty of medicine. This edition has been in proof plates for three years, but revisions are modern and there are few omissions. The attitude of the authors is denoted by a prefatory statement which recognizes the trend by which pathology is becoming a science of the living; and the implication is that it is the pathologist's duty to recognize tissue changes and their significance as early as possible.

Hundert Jahre Schweizerischer Apotheker-Verein (Centenaire de la Société suisse de pharmacie), 1843-1943. Cloth. Pp. 603, with illustrations. Zurich: Schweizerischer Apotheker-Verein, 1943.

This book is dedicated to the Swiss Pharmaceutical Association on the occasion of its centennial, Sept. 25-26, 1943. Swiss pharmacists have contributed many scientific papers in special journals and many will remember the excellent work done by the Swiss Pharmaceutical Association for the Swiss pharmacopeia. The association has favored always the scientific education of pharmaceutical students, has attempted by means of funds to activate pharmaceutical investigations, was the founder of the "Pharmaceutica Acta Helvetiae," the special Swiss pharmaceutical publication dedicated to science only, and has carried on laboratory testing of drugs. The volume contains thirty scientific articles by pharmacists who are practicing pharmacy or who are employees of scientific institutes, with industry or with the government. The contents appear, depending on the author, in German, French or Italian and concern such subjects as the preparation of dry extract of ipecacuanha, the melting and congelation of butter of cacao, the determination of santonin and phenolphthalein in vermifuges, the use of the histometric method in the examination of some natural drugs, the determination of total alkaloid contents of cinchona bark and contents of quinine, hydroquinine and cinchonidine, and other topics covering varied subjects such as vitamins, rhubarb and the sulfonamides.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

TREATMENT OF WHIPWORM INFECTION

To the Editor:—Four months ago I examined a girl aged 3½ years who had been brought to me because of the frequent occurrence of sties, restlessness and maldigestion. The child had typhoid at the age of 2 and scarlet fever at 3. Physical examination was negative. After repeated examinations, the ova of *Trichocephalus trichiurus* were found. Various vermifuges were tried and repeated; the best results, gaging by the decrease in eosinophil count, were obtained with hexylresorcinol. On Jan. 21, 1944 the eosinophilia, one week after treatment, was 9 per cent. Treatment was discontinued and on February 10 the eosinophilia had risen to 37 per cent. Can you suggest any additional therapeutic measures?

William S. Woods, M.D., Blairsville, Pa.

ANSWER.—In order to understand the difficulty of securing satisfactory elimination of the whipworm, *Trichocephalus trichiurus*, from the human bowel, it is well to realize that the delicate anterior end of this worm is basted into the mucosal layer of the cecum or appendix. This allows the worm to maintain a tenacious hold on the bowel wall. Experience has demonstrated that caprokol (hexylresorcinol crystals) as administered in ascariasis is only partially effective against this worm. Much better results are obtained with tetrachlorethylene and oil of chenopodium in the proportion of approximately 9:1, but special preparation must be made for the administration of this or any other anthelmintic for use against the whipworm.

In an instance such as that cited, the following regimen is recommended: The patient should be kept on a light diet for two days preceding treatment. The night before specific medication, purgation with sodium sulfate should be carried out and, following good elimination, there should be a high enema of isotonic solution of sodium chloride to clean out the residue of viscous feces which remain attached to the worms. The following morning the patient should remain in bed and, without breakfast, should be given 0.6 cc. (10 minims) of tetrachlorethylene and 0.12 cc. (2 minims) of oil of chenopodium, which should have been thoroughly mixed. This preparation can be safely given on a teaspoon with sugar. Two hours after administration there should be a follow-up sodium sulfate purge and following bowel movements after treatment a light noon meal may be taken.

The prescription described does not guarantee complete elimination of the worms but, if carefully carried out, will in the average case produce satisfactory clinical results.

SUNBURN THROUGH WINDOWS AND PLASTICS

To the Editor:—Is it possible for a man, driving an automobile on a sunny day, to acquire a sunburn of his left forearm from driving along for several hours with his left bare forearm resting on the window ledge of the door and the window closed, the sun shining through the door window? Does the plastic material used as canopy windows in airplanes transmit enough ultraviolet radiation to cause sunburn of the unshielded pilot after an exposure of several hours with the canopy closed? In other words, how much ultraviolet is permitted to penetrate the glass in automobiles and the plastic windows of planes?

Captain, M. C., A. U. S.

ANSWER.—The laminated glass windows of automobiles are opaque to ultraviolet of wavelengths shorter than about 3,200 angstroms; hence no sunburn is to be expected. If the plastic material used in airplane canopies does not contain a special absorbent of ultraviolet, sunburn may occur on the untanned skin.

WETTING AGENTS ORALLY

To the Editor:—Please let me know whether there are any nontoxic-wetting agents available which would be suitable when mixed with powders for oral administration. I would appreciate references.

Julius L. Rogoff, M.D., New York.

ANSWER.—Conceivably the phenomena associated with artificial tissue wetting constitute a deviation from the usual physiologic state, so that theoretically there may be no "nontoxic wetting agents." Although the publications related to tissue action from wetting agents are few, at present in several places work of this character is in process. Some of this work has

been a failure not because of injurious properties but because the wetting agents themselves are destroyed within the alimentary tract. Wetting agents susceptible to the action of either acids or alkalis are not effective following oral intake. The three wetting agents at this time most frequently associated with alimentary tract application are Aerosol OT, Triton NE and Lauryl Sulfonates. Since the quantity of any wetting agent used in any application is so trivial, it is unlikely that any systemic involvement might derive from the great majority of wetting agents reasonably applied as an adjuvant to therapy. The action of wetting agents on skin surfaces is sufficiently related, so that the items cited include:

Lane, C. G., and Blank, I. H.: Cutaneous Detergents, *THE JOURNAL*, March 7, 1942, p. 804.

Benaglia, A. E., Robinson, E. J., Utley, E., and Cleverdon, M. A.: The Chronic Toxicity of Aerosol-OT, *J. Indust. Hyg. & Toxicol.* 25: 175 (May) 1943.

Smyth, H. F., Jr.; Seaton, J., and Fiseher, L.: Some Pharmacological Properties of "Tergitol" Penetrants, *ibid.* 23: 478 (Dec.) 1941.

Lorenz, E.; Shimkin, M. B., and Stewart, H. L.: Preparations of Dispersions of Carcinogenic Hydrocarbons and Hormones with the Aid of Dioctyl Ester of Sodium Sulfosuccinate (Aerosol O. T.), *J. Nat. Cancer Inst.* 1: 355 (Dec.) 1940.

DERMATITIS FROM LIME USED IN PACKING HOUSE

To the Editor:—The local packing house uses a hot solution of "hydrated lime" (90 per cent calcium and magnesium carbonate) for dipping and apparently bleaching the carcasses of hogs immediately after killing. Employees who cut up the carcass after this procedure develop a non-weeping but itching red dermatitis with gradual thickening and cracking of the skin. If they stay away from work for two or three days the acute dermatitis subsides. I am wondering whether any of the doctors associated with Chicago's packing houses have had any experience in preventing this form of dermatitis. Apparently the procedure is a common one in the packing business.

M.D., Iowa.

ANSWER.—The large packing houses have long since discontinued the use of chemicals in removing the hair from the carcasses of hogs. The carcasses are sent through boiling water and then through machines which remove the hair from the carcasses without the necessity of workmen coming into contact with the hogs during this process. Probably the packing house using this chemical procedure is new in the business and should adopt modern methods.

EXPOSURE TO LUCITE

To the Editor: What would be the effect, if any, of lucite dust on the general health, and especially on the lungs of a person working under conditions in which large quantities of this dust are present in the air.

M.D., New York.

ANSWER.—Animal experiments carried out years ago failed to show any injury to the lungs or any definite pathologic effect from lucite dust. Long continued clinical observations on workers in a plant manufacturing lucite also has not revealed any deleterious effects from exposure.

POLIOMYELITIS AND LATE MUSCLE ATROPHY

To the Editor:—In *The Journal* of March 4, 1944, page 676, there was a query about the cause of atrophy of muscles seemingly normal for fourteen years in a patient after an attack of poliomyelitis. The answer was "With normal recovery from poliomyelitis such atrophy would not occur after a period of fourteen years." The occurrence of muscular atrophy in patients who have recovered from poliomyelitis is not uncommon. Wilson, in his *Neurology*, page 240, says: "The late development of progressive muscular atrophy on the basis of injury to the cord by poliomyelitis in childhood has been recognized since the time of Charcot. The amyotrophy may, or may not, start in groups already damaged by the infantile disease. Some 37 cases of the kind were collected from the literature by Potts in 1903, and a number more have since been observed. In rare examples the type subsequently appearing conforms rather to a myopathic than to a myelopathic class (Ingham). Of several personal cases one is that of a man of 35 who suffered from poliomyelitis of the left shoulder and arm at the age of 3 and whose right thigh and leg began to waste at the age of 30." Oppenheim, in his textbook on nervous diseases (7th German edition, p. 287) says: "Persons suffering from poliomyelitis are, in some way, even in later life, still endangered; they have and retain some predisposition for atrophic paralysis. Thus it has been found sometimes that, on the basis of poliomyelitis, in later life a progressive muscular atrophy or a chronic anterior poliomyelitis had developed." Oppenheim quotes fifteen authors on this subject. Dimitri devoted a special clinical and anatomic study to these late progressive amyotrophies in cases of poliomyelitis (*Semana méd.* 2: 1002 [Oct. 13] 1932). Recently I saw a woman aged 21 who at the age of 3½ suffered a severe poliomyelitis affecting both legs and the right arm. The left arm had never in any way been involved. Two months ago she noticed a weakness of the left hand and shows now on the left hand and arm all the symptoms of progressive muscular atrophy.

Robert Wartenberg, M.D., San Francisco.

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THE ARMY REHABILITATION PROGRAM FOR THE BLIND AND THE DEAFENED

BRIGADIER GENERAL CHARLES C. HILLMAN
U. S. ARMY

The rehabilitation of seriously handicapped military personnel becomes increasingly important as more and more of our troops engage in combat. Among the most formidable disabling conditions encountered in soldiers are blindness, deafness, amputations of the extremities, paralysis following nerve injuries, and facial disfigurement. In this paper I shall discuss only the Army program for rehabilitating personnel with loss of sight and impairment of hearing.

In Surgeon General's Office Circular Letter No. 162, issued last September, it was pointed out that the particular emotional problems of the newly blinded and deafened and their need for assistance in learning how to live without sight or hearing create a need for specialized rehabilitation.¹ A discussion of these disabilities will illustrate the Army's basic philosophy of management of handicapped military personnel.

Misinformation about blindness and deafness as a military problem is being circulated at this time. There have been rumors to the effect that many thousands of cases of deafness among servicemen may be anticipated as a result of this war, that every combat aviator may expect to suffer serious impairment of hearing, that there are thousands of war blinded and that a gigantic breeding program for dogs to guide blinded soldiers will be necessary to meet the demand. Fortunately, all of these rumors are untrue.

Let us review some facts and attempt to determine the extent of the problem of blindness in soldiers.

As a result of World War I,² France in 1922 had 2,200 blinded pensioners; Great Britain had slightly under 3,000. The United States Veterans Administration figures show about 300 pensioners with service connected visual loss. The American war blinded were cared for in General Hospital No. 7. Here, in a converted private estate on the outskirts of Baltimore, rehabilitation of the blind was started by teachers of braille and an experienced leader in recreation and handicraft. Of a total of 117 cases of blindness treated, 65 soldiers were totally blind and 52 had varying degrees of visual loss. High explosive shells, shrapnel

and hand grenades caused 67 of these 117 cases of disability, and machine gun and rifle bullets caused 12.³

So far in the present world war the renowned St. Dunstan's agency for the care of the blind in Great Britain has known of 288 British servicemen and civilian casualties.

The United States Veterans Administration reported, as of January 1944, 99 veterans with varying degrees of blindness. Of the 86 discharged with blindness from the Army, 17 were totally blind.⁴ As of the first of March, 73 cases of blindness were registered with the Office of the Surgeon General. There were, in addition, 2 blinded prisoners of war under treatment. Blindness is said to exist, by Army definition, when the best corrected vision is 20/200 in the better eye.

Of 42 patients admitted to one of the hospitals designated to care for the blind in this war, the reports show 17 cases of blindness due to wounds incurred in action, 18 cases due to injuries accidentally incurred and 7 cases due to disease. Six of the 17 battle casualties were caused by land mines or booby traps and 7 by shrapnel. Land mines caused 6 of the 18 accidental injuries, and dynamite blasts caused 5.⁵ Sir Ian Frazer has been quoted² as saying that in World War I two thirds of the cases of blindness were due to wounds caused by high explosive shells from which fragments of metal penetrated the eyes. In the present war he is reported to have found more blinded by concussion followed by hemorrhage. A detailed analysis of the American blinded has not yet been made.

Two hospitals, Dibble General Hospital, Menlo Park, Calif., and Valley Forge General Hospital, Phoenixville, Pa., have been especially equipped and staffed as ophthalmic centers. Here programs of social rehabilitation are initiated and carried out simultaneously with medical or surgical treatment that may be required. To insure that blinded soldiers shall have the benefit of the most expert care at all times, the War Department requires that each such casualty occurring in the United States or returned from overseas shall be reported to the Surgeon General, in whose office the case is then followed until medical and surgical treatment and social rehabilitation are completed and the patient is transferred to the Veterans Administration for vocational training.

It is important to have specially trained personnel contact the blinded soldier early in order to encourage the patient and keep him looking hopefully forward to the prospect of a full and useful life. A consultant, who has been blinded in this war and is well adjusted

3. Barton, W. E., Major, M. C.: A Program for the Care of the Blind in World War II in Army Hospitals, *Proc. Am. A. Workers for Blind*, July 1943, pp. 51-55.

4. Hines, Frank T., Brigadier General, U. S. Army: Personal communication to the Surgeon General of the Army, Jan. 26, 1944.

5. Gear, J. N., Jr., Lieut. Col., M. C., Chief, Rehabilitation Serv. to Blind: Report to the Surgeon General.

1. Rehabilitation of the Blind and the Hard of Hearing in Army Hospitals, Circular Letter No. 162, Office of the Surgeon General, Sept. 11, 1943.

2. Farrell, G.: Help for the Blinded Soldier, *Hygeia* 22: 259 (April) 1944.

to his own handicap, is dispatched to the first hospital of residence of a newly blinded casualty in order to provide psychologic and emotional support. The blind consultant also arranges a temporary training program to bridge the period of time until the newly blinded soldier may be safely sent to one of the two special hospitals.

At the hospital designated for the care of the blind, the soldier is taught how to dress and shave, and how to feed and care for himself. He is taught to use a typewriter, as this must now be a means of communication with his friends. He is taught how to write and how to tell the time of day with a braille watch. The Talking Book opens to him the world of literature, even before he learns to read braille. Radios, which are made available, offer much enjoyment. He is taught the braille method of reading and writing, and those who enjoy reading are encouraged to extend their study of braille. There teachers whose eyes have not been injured insure neatness of dress and good posture. Occupational therapists teach them to use their hands, to develop new perceptual skills and manual dexterity, and thus assist in restoring confidence through useful work. When the patient has learned to get about readily, he is encouraged to enlarge his social contacts, visit the city, go to concerts and get about in the world among his friends. The Red Cross makes an important contribution also in developing the family's understanding of the problems of the blind. The family is advised concerning how it may assist the patient and encourage him to develop self reliance.

The President's "Committee on Rehabilitative Measures to be carried on by the War and Navy Departments with respect to blinded service men" recently extended the responsibility of the Army beyond the customary period required for adequate medical and surgical treatment. Under this plan a center will be established adjacent to one of the special Army hospitals for the blind. Here blinded service personnel of the Army, Navy and Marine Corps will be given further training in social adjustment for an average period of from four to six months. During this time, aptitudes and interests will be explored and tested in prevocational training.

The Veterans Administration is charged by law with the vocational training of incapacitated discharged soldiers. To enable the blind promptly to become self supporting, the Veterans Administration will complete arrangements for such vocational training prior to their discharge from the service.

There is much interest in the matter of guide dogs, the public generally having the idea that every blinded person should have one. Experience shows, however, that only about 10 per cent of the blind can use dogs advantageously. Many blinded soldiers will develop the ability to get about with the minimum of assistance. With a skilfully used cane they are inconspicuous and unencumbered. Some individuals do not like dogs; others are temperamentally unfitted for canine companionship. It is important to have determined the type of work to be done and whether a guide dog will be practical and compatible with the future choice of a job. Even when the use of a dog is contemplated, it is better for the blinded individual first to develop his complementary senses to the fullest extent. The Veterans Administration and the Medical Department

of the Army concur in the belief that a veteran should secure a guide dog only when it is shown that the dog is the best solution to the veteran's problem. Private guide dog agencies have agreed to provide dogs to blinded soldiers either gratis or at nominal cost. It appears that the facilities of these agencies will be adequate to meet all anticipated needs and that governmental aid in supplying dogs will not be required.

THE HARD OF HEARING

The problems involved in rehabilitating the hard of hearing do not differ greatly from those outlined for the care of the blind. The immediate objective, however, is different; for many of the hard of hearing patients, after adequate medical treatment, can be trained in speech and lip reading, fitted, in most cases, with a hearing aid, and then returned to limited duty in the military service.

In the first world war, 1 man in 5,000 was discharged for defective hearing.⁶ The Veterans Administration on Oct. 28, 1943 had on the compensation or pension rolls 416 veterans of World War I who were totally deaf, and 12,397 who were partially deaf. Meningitis was the cause of 25 per cent of the hardness of hearing.⁷

The Statistical Division of the Surgeon General's Office estimated on Dec. 30, 1943 that the average annual admission rate to Army hospitals for deafness and defective hearing was approximately 1 in 1,000 per annum. This estimate was extended on Feb. 12, 1944 to predict a discharge rate for men with defective hearing of about 34 per hundred thousand annually (as compared with 20 per hundred thousand annually in World War I). On Jan. 1, 1944, 313 patients with defective hearing had been admitted to the three hospitals which have rehabilitation services for the deaf.

In a study of 102 cases of deafness⁸ 54 were of perceptive deafness, 34 had mixed perceptive and conductive deafness, 4 had conductive deafness, 6 had otosclerosis and 4 were deaf because of other disorders.

In another series of 153 cases⁹ defective hearing had existed prior to induction in 48 cases and was considered progressive and not aggravated by service, 21 cases of partial deafness resulted from the blast of high explosives during enemy action, 10 cases of partial deafness were due to heavy firing not acquired during combat and in 17 cases impairment of hearing existed prior to induction and was considered to have been aggravated by service.

While the rate of incidence of deafness seems increased, not as many cases have developed as might have been expected from the increased hazards in this war due to blast and noise. Persons with impaired hearing have not been received for rehabilitation from the Army Air Forces in greater proportion than from other branches of the service to date.

Three hospitals have been designated for special care of the deaf. These are the Deshon General Hospital, Butler, Pa., the Borden General Hospital, Chickasha, Okla., and the Hoff General Hospital, Santa Barbara, Calif.

6. Communication from Statistical Division, Office of the Surgeon General, Oct. 30, 1943.

7. Communication from Office of Budget and Statistics, Veterans' Administration, Oct. 28, 1943.

8. Barton, W. E., Major, M. C.: The Philosophy of Army Rehabilitation Program, read before the War Problems Conference of the National Association of Teachers of Speech, New York, Dec. 30, 1943.

9. Mobley, M. R.: Annual Report of the Deshon General Hospital, Jan. 1, 1944.

In Circular No. 81, issued Feb. 23, 1944, the War Department directed that "every case in which the impairment of hearing shows a true loss in the better ear of 30 decibels of hearing within the conversational range (256-2,048 decibels), or a loss of $\frac{3}{15}$ or below to whispered voice, when an audiometer is not available, in a case of stationary or progressive deafness free from acute inflammatory aural disease, will be transferred to a hospital designated for the rehabilitation of the deaf at the earliest practicable date.

"Hearing aids are furnished to personnel in active military service who are suffering from hearing defects that preclude the performance of military duty, regardless of line of duty status, when examination shows that such aids will materially improve the hearing of the individual concerned."¹⁰

The three hospital centers for the deaf previously mentioned are the only ones authorized to fit hearing aids. In each case the particular make or model of hearing aid is selected only after careful objective and subjective tests made by the Army's own acoustic experts. Individual ear molds are supplied in each case.

The rehabilitation service to the deafened provides training in residual hearing and lip reading. Experienced teachers give daily lessons to those who require such training. Group practice and movie film instruction have been found to shorten the learning time for lip reading. Most patients become able to read lips in from six to eight weeks. Speech teachers are also on duty in the three special hospitals to prevent deterioration in speech.

It is pointed out again that after periods of rehabilitation many of these men can be returned to military duty in specialized assignments. Those servicemen who are unfit for further military duty will be enabled to secure vocational training more easily and ultimately to obtain satisfactory positions in civil life. In partial summary it may be said that:

1. The number of cases of blindness in our Army in this war is still small, 73 having been recorded by March 1, 1944.

2. Two specially staffed and equipped ophthalmic hospitals receive all newly blinded casualties. A reporting system insures that all cases are found and transferred to these special hospitals for necessary medical and surgical care and initiation of social rehabilitation.

3. The Army is setting up a facility for the social rehabilitation of the blind, following necessary hospitalization, not only for its own, but also for the blind of the Navy and the Marine Corps. The program will provide for social adjustment, teaching of braille and prevocational training.

4. Deafness in World War II is increased over that in World War I on the basis of figures now available.

5. The Army rehabilitation program for the deaf includes (a) treatment of all deafened in three special hospital centers, (b) supplying properly fitted hearing aids to all who will benefit by their use and (c) offering instruction in residual hearing, lip reading and proper speech control.

6. Hard of hearing servicemen are salvageable for many types of specialized duty.

THE TREATMENT OF GONORRHEAL URETHRITIS

WITH SULFONAMIDES AND PENICILLIN
COMBINED

COMMANDER HARRY C. OARD (MC), U.S.N.R.

LIEUTENANT COMMANDER E. V. JORDAN
(MC), U.S.N.R.

LIEUTENANT COMMANDER MEYER NIMAROFF
(MC), U.S.N.R.

AND

LIEUTENANT WILLIAM J. PHELAN (MC), U.S.N.R.

When penicillin became available at the U. S. Naval Hospital, Bainbridge, Md., in October 1943, a large number of patients with sulfonamide resistant gonorrheal urethritis were under treatment. Most of them had been treated for long periods, almost all for more than forty days, a fairly large number for more than sixty days, and one man had been on the sick list one hundred and twenty-eight days. Treatment had consisted in repeated courses of sulfathiazole and sulfadiazine (table 1), in most instances with the addition of standard types of local therapy. The penicillin sodium was procured from two nationally known pharmaceutical firms. At first the dosage recommended by Keefer and his associates,¹ 160,000 Oxford units at the rate of 10,000 units every three hours, was injected into the muscle. It soon became apparent, however, not only that penicillin was brilliantly efficacious but that its action was so rapid that in all the cases clinical and bacteriologic cure resulted within twenty-four hours. In many the urethral discharge and all symptoms ceased within nine hours. In the meantime Turner and Sternberg² suggested that 50,000 Oxford units would probably be efficacious in gonorrheal urethritis, although they predicted, apparently as the result of experience, that 10 to 20 per cent failures might be expected with such dosage. Those considerations, together with the limited availability of the drug and the need to conserve it, led us progressively to decrease the dosage, until finally a series of 73 sulfonamide resistant cases were treated with 50,000 Oxford units of penicillin each (table 1, group B). There was but 1 failure. As a result, however, of conversations with Dr. C. S. Keefer and with Capt. W. W. Hall of the Medical Corps, U. S. Navy, it was suspected that the striking success with 50,000 units obtained in that series might be more fortuitous than real. They pointed out that the assay of penicillin is as yet subject to such limitations that in using doses of 50,000 units the variation of actual dosage administered may range from as little as 30,000 units to as much as 70,000 units. Foster and Woodruff³ have written of the limitations and

From the U. S. Naval Hospital, Bainbridge, Md.
The authors were assisted by Lieut. H. W. Savage (MC), U. S. N. R., and Ensign Elma Krumwiede, Women's Reserve, U. S. N. R.
Since this article was prepared the authors have treated 71 additional cases with combined sulfonamide-penicillin. The results were in all respects similar to those described and do not differ statistically from those of table 2.

1. Keefer, C. S.; Blake, F. G.; Marshall, E. K., Jr.; Lockwood, J. S., and Wood, W. B., Jr.: Penicillin in the Treatment of Infections, J. A. M. A. 122: 1217 (Aug. 28) 1943.

2. Turner, T. B., and Sternberg, T. H.: Management of the Venereal Diseases in the Army, J. A. M. A. 124: 133 (Jan. 15) 1944.

3. Foster, J. W., and Woodruff, H. B.: Microbiological Aspects of Penicillin: I. Methods of Assay, J. Bact. 46: 187 (Aug.) 1943; Improvements in the Cup Assay for Penicillin, J. Biol. Chem. 148: 723 (June) 1943.

difficulties in performing accurate assay of penicillin. Moreover, a subsequent report from the Army⁴ indicated that when 50,000 units of penicillin alone was used to treat sulfonamide resistant gonorrheal urethritis the failures were in excess of 15 per cent. In the meantime Rammelkamp and Keefer⁵ had suggested that a combination of a sulfonamide compound with penicillin might prove more effective than either drug alone in staphylococcal infections. In their preliminary observations they had observed that "the addition of small amounts of penicillin, which in itself displays no killing effect against staphylococci, will enhance the anti-staphylococcal effect of sulfathiazole in whole defibrinated blood." It was desirable, therefore, in view of these considerations to investigate the effect of a combination of sulfathiazole and small doses of penicillin on acute gonorrheal urethritis. Table 2 summarizes the results of that investigation.

METHODS

The criteria of diagnosis of gonorrheal urethritis were a history of exposure, when it could be obtained, the presence of a purulent urethral discharge and demonstration of *Neisseria gonorrhoeae* in smears. Criteria of cure were disappearance of symptoms and of urethral discharge, and failure to find and to culture *Neisseria gonorrhoeae* from material obtained by prostatic massage between the fourth and fifth days after the completion of treatment, and again between the tenth and fifteenth days. The culture medium employed was a beef extract agar base containing bactotryptose or neoptone with 0.03 per cent dextrose and 5 per cent sodium chloride with 10 cc. of a 0.5 per cent solution of paraaminobenzoic acid added to each liter of medium.

The treatment of patients listed in table 1 consisted in the administration of penicillin as shown. The treatment of all patients listed in table 2 consisted in the following: On the first day 8 Gm. of sulfathiazole was

TABLE 1.—Patients with Sulfonamide Resistant Gonorrheal Urethritis Treated with Penicillin

Patients	Total Penicillin Units	Concentration per Cc., Units	Units per Dose	Frequency
Group A*				
4.....	160,000	5,000	10,000	3 hours
17.....	150,000	5,000	10,000	3 hours
6.....	145,000	5,000	10,000	3 hours
1.....	140,000	5,000	10,000	3 hours
2.....	130,000	5,000	10,000	3 hours
34.....	100,000	5,000	20,000	3 hours
39.....	100,000	5,000	20,000	4 hours
3.....	80,000	5,000	20,000	4 hours
106				
Group B†				
69.....	50,000	5,000	10,000	2 hours
4.....	50,000	5,000	5,000	1 hour

* Average dose of sulfonamide prior to beginning penicillin, 52.3 Gm. ranging from 16 to 100 Gm.

† Average dose of sulfonamide prior to beginning penicillin, 24.7 Gm. ranging from 8 to 56 Gm.

given orally in four divided doses; on the second day 4 Gm. of sulfathiazole in divided doses was given with the concomitant administration of 50,000 Oxford units of penicillin at the rate of 10,000 units (5,000 units per

4. Hall, W. W., Capt., M. C. U. S. Navy: Personal communication to the authors.

5. Rammelkamp, C. H., and Keefer, C. S.: Penicillin: Its Antibacterial Effect in Whole Blood and Serum for the Hemolytic Streptococcus and Staphylococcus Aureus, *J. Clin. Investigation* 22:425 (May) 1943.

cubic centimeter) every three hours in the muscle. Intramuscular injections at the rate of 10,000 units every three hours were used as a result of the studies of Rammelkamp and Keefer,⁶ of Dawson, Meyer and Chaffee⁷ and because our previous experience had indicated that that rate was highly efficacious.

TABLE 2.—Patients with Gonorrheal Urethritis Treated with Sulfathiazole (12 Gm.) and Penicillin (50,000 Oxford Units) Combined

	Cured	Failed	Total	Per Cent Failed
White				
Group A *.....	25	2	27	7.40
Group B †.....	39	4	43	9.30
Total white.....	64	6	70	8.57
Negro				
Group C ‡.....	112	2	114	1.75
Group D §.....	46	2	48	4.16
Total Negro.....	158	4	162	2.47
Total all cases.....	222	10	232	4.31

* White recruits.

† White men with acute untreated disease.

‡ Negro recruits.

§ Negro men with acute untreated disease.

The data from the study are presented in the accompanying tables. Our results with the use of penicillin in doses of 80,000 or more Oxford units in sulfonamide resistant gonorrheal urethritis are in accord with those obtained by others.⁸ In almost all cases in which such doses were administered the symptoms and urethral discharge cleared and bacteriologic cure resulted within twenty-four hours or less. In a few a slight mucoid discharge persisted for a few days.

The results in sulfonamide resistant gonorrhea in patients who received only 50,000 units of penicillin (table 1, group B) were unexpected in that there were no failures. The series (73 cases) seem somewhat large to be accounted for by mere chance. Because, as already indicated, the error of the assay of penicillin may be considerable when dealing with small amounts, it might be supposed that the patients actually received considerably more than 50,000 units, but against such a supposition is the fact that several different batches of the drug obtained from two different pharmaceutical firms were used in treating those patients, and it is unlikely that an error would always have been in the same direction. Although the aforementioned factors may have played a role, we are of the opinion that the excellent results obtained with the combined drugs occurred because the drugs actually enhanced the efficacy of each other. Enhanced clinical effectiveness in the treatment of staphylococcal infections by using sulfonamide compounds and penicillin combined was predicted by Rammelkamp and Keefer⁵ as a result

6. Rammelkamp, C. H., and Keefer, C. S.: Absorption, Excretion and Distribution of Penicillin, *J. Clin. Investigation* 22:425 (May) 1943.

7. Dawson, M. H.; Hobby, G. L.; Meyer, K., and Chaffee, E.: Penicillin as a Chemotherapeutic Agent, *Ann. Int. Med.* 19:707 (Nov.) 1943.

8. Herrell, W. E.; Cook, E. N., and Thompson, L.: Use of Penicillin in Sulfonamide Resistant Gonorrheal Infections, *J. A. M. A.* 122:289 (May 29) 1943. Mahoney, J. F.; Ferguson, C.; Buchholtz, M. S., and Van Slyke, C. J.: The Use of Penicillin Sodium in the Treatment of Sulfonamide Resistant Gonorrhea in Men, *Am. J. Syph., Gonorr. & Ven. Dis.* 27:525 (Sept.) 1943. Robinson, J. N., cited in *Penicillin, Foreign Letters* (London), *J. A. M. A.* 124:117 (Jan. 8) 1944. Cook, E. N.; Pool, T. L., and Herrell, W. E.: Further Observations on Penicillin in Sulfonamide Resistant Gonorrhea, *Proc. Staff Meet., Mayo Clin.* 18:433 (Nov. 17) 1943. Dawson, M. H., and Hobby, G. L.: The Clinical Use of Penicillin: Observations in 100 Cases, *J. A. M. A.* 124:611 (March 4) 1944. Bloomfield, A. L.; Rantz, L. A., and Kirby, H. M. M.: The Clinical Use of Penicillin, *ibid.* 124:627 (March 4) 1944. Keefer, Blake, Marshall, Lockwood and Wood.²

of their experimental observations. Further support of that idea will become evident when the results listed in table 2 are studied. Clinically the only difference between the patients receiving 50,000 units and those receiving the larger doses was that in the former the urethral discharge abated somewhat more slowly, usually over a period of two to three days, but the patients were bacteriologically cured just as promptly.

Group A of table 2 was composed of white men whose disease was discovered in the receiving line for recruits. Because the histories were usually unreliable, estimation of the duration of their disease or of previous treatment was not attempted. In many the disease had probably existed for prolonged periods and had received considerable treatment; in others it was probably of fairly recent origin, frequently being the result of a "last fling" just prior to the induction into the Navy. Group B of table 2 consisted of white men who had been in naval service for at least six weeks. Because such men report promptly to the sick bay, it is safe to assume that all cases were of recent origin and that they had not received previous treatment. Table 2, group C, is similar to group A except that the patients were Negroes; group D corresponds to group B with the same exception.

That gonorrhea in Negroes is more amenable to treatment than it is in white men has long been the belief of physicians. Turner and Sternberg² have recently shown a striking difference between the races in the effectiveness of treatment with sulfonamides. The results given in table 2 show a similar difference in the racial responses to treatment with penicillin and sulfonamides combined.

The results shown in table 2 also support the idea that sulfonamides enhance the effectiveness of penicillin. In an analysis of almost 7,000 cases Turner and Sternberg² showed that from 25 to 35 per cent of white men with gonorrheal urethritis fail to respond to one course of treatment with sulfonamides and that approximately 10 per cent of Negroes fail to respond. It has also been demonstrated that treatment of the disease with 50,000 units of penicillin alone results in upward of 15 per cent failures.⁴ In contrast, the data of table 2 show that with the combined use of a moderate amount of sulfathiazole with 50,000 units of penicillin from one half to one third as many failures occur as result when similar amounts of the drug are used alone. Furthermore, when previous treatment with sulfonamides is followed by the combined sulfonamide-penicillin therapy the rate of cure is even greater, especially in the Negro (table 2, groups A and C). Whether or not the increased effectiveness is due to true synergism between the drugs is not clear, because, as stated, penicillin therapy is also more efficacious for patients who have received previous treatment with sulfonamides. One might, of course, assert that the greater effectiveness when the drugs are used simultaneously is due not to an additive effect or to an enhancing of one drug by the other but merely to the fact that a certain number of patients are cured by one drug while the other drug was ineffectual. From a practical standpoint, however, the important factor is that the concomitant use of moderate amounts of sulfonamides (12 Gm.) and of penicillin (50,000 units) is strikingly more effective than when either drug is used alone.

Clinically it was noteworthy that the patients treated concurrently with the drugs were cured promptly, and

that except for 1 patient failure to cure was obvious within three or four days. When the treatment failed, symptoms failed to disappear, the urethral discharge abated but slightly or not at all, and smears remained positive for *Neisseria gonorrhoeae*. Only 1 patient, whose symptoms and discharge cleared immediately and who was bacteriologically "cured" on the seventh day, later had a recurrence of mucoid discharge from which *Neisseria gonorrhoeae* was cultured on the sixteenth day.

When failure to cure with the combined drugs occurred, the patients were immediately treated with 100,000 units of penicillin alone; all were promptly cured. In the entire series of cases no untoward effects from penicillin were observed.

From the military standpoint the primary consideration in treating venereal disease is saving of manpower days. From that point of view it might be considered, because of the almost complete effectiveness of treatment of uncomplicated gonorrheal urethritis with 100,000 Oxford units of penicillin, that that dose should be used in all cases. Nevertheless, in any large scale program of treatment cost must be considered, and of even more importance than cost at present is the question of availability of penicillin. The combined use of sulfonamides with small doses of penicillin has the advantages of rapid cure in a high percentage of cases, especially in the Negro, and the reduction essentially by half in the cost and the amount of the drug used. Furthermore, the ease and the promptness of recognition of the few failures which do occur when the combined treatment is used make that method from a military point of view fully as practical as the use of larger doses.

CONCLUSIONS

1. Penicillin sodium was used in the treatment of a total of 411 patients with gonorrheal urethritis.
2. A combination of moderate doses of sulfathiazole and small doses of penicillin sodium was used in the treatment of 232 patients.
3. Gonorrheal urethritis of the Negro is more susceptible to treatment with penicillin and with penicillin and sulfathiazole combined than it is in the white race.
4. Sulfathiazole and penicillin appear to enhance the effect of each other against *Neisseria gonorrhoeae*.
5. The combined use of moderate amounts of sulfathiazole and of penicillin is a safe, rapid, efficient and economical method of treating gonorrheal urethritis.

Origins of Greek Medicine.—From the prevailing remnants of the older civilization—the Egyptian, the Minoan and the Babylonian—the Greeks obtained the foundations of their knowledge of medical practice. To Egypt the Greek debt was incalculable—though it was grudgingly admitted—and from Egypt was derived the concepts of the divine origin of medicine, an appreciation of rigid medical ethics and a knowledge of pharmacology. This is best exemplified in the parallel gods of healing—Apollo and Thoth—the deification of the semi-legendary figures of Aesculapius and Imhotep and the polypharmacy of both races; and much of the wholesomeness of the Hippocratic Oath reflects the probity of Egyptian practice. From the Minoans, whose submerged and almost lost culture focused on the island of Crete, originated the Serpent Symbol and some advanced ideas of sanitation and hygiene. From the Babylonians, dwelling in the valley between the Tigris and the Euphrates, came many of the Grecian superstitious beliefs and demoniac theories.—Ricci, James C.: *The Genealogy of Gynecology*, Philadelphia, Blakiston Company, 1943.

THE TEACHING OF DRUG THERAPY

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My interest in the subject of drug therapy has been again aroused by the following possibly dangerous incident. I asked my intern to prescribe tincture of nux vomica for a patient who was leaving the hospital and who was to have the prescription filled in his home town 150 miles from Chicago. The intern wrote the following prescription: "R: Tr. Nux Vomica oz. 6 Sig. 1 teaspoonful in ½ glass of water 3 times a day." The standard dose is 0.5 to 2 cc. A teaspoon holds 4 to 7 cc.

Several years ago I had a similar experience. I asked one of my fellows in urology to prescribe quinine sulfate for a child and to make a palatable mixture. He told me frankly that he had no idea how to prescribe quinine sulfate so as to make it palatable. When I questioned him about the instruction he had received in medical school on this frequently used agent, his reply was that the time was spent on the chemical formula, the spectroscopic picture and so on, and that he had not received any instruction on how the drug was to be administered.

Results of Analysis

	Location of Pharmacy			
	Loop	Residen- tial I	Residen- tial II	Hospi- tal
Nonproprietary (official and N. N. R.) prescriptions.....	62.2%	61.7%	59%	69.4%
Proprietary remedies.....	26.9	27.4	38.1	14.8
Vitamins.....	10.9	10.9	2.9	15.8

Every one will agree that therapeutics holds a place of great importance in the treatment of the patient. In order to get some idea of how and what the present day physician prescribes in the treatment of his patient, 5,000 consecutive prescriptions from the files of four prescription pharmacies in Chicago were studied. One of the pharmacies was in the loop, two were in residential sections, and one was the pharmacy of a teaching hospital. For purposes of study, prescriptions were classified under three headings: (1) nonproprietary (official and N. N. R.) prescriptions; (2) proprietary remedies; (3) vitamins.

The results of this analysis are given in the accompanying table.

During this survey I was greatly impressed by a statement from several of the pharmacists to the effect that they can tell what detail man is calling on the doctors in their neighborhood by the type of prescriptions that begin to flow into the pharmacy. It seems to me that it is a sad state of affairs when physicians are prescribing as many as 38 per cent proprietary remedies on the recommendations of salesmen for drug houses.

An analysis of the table offers a significant finding: The teaching hospital has the lowest percentage, which is what one would expect to find in any progressive center.

When the druggists were asked to give their impressions as to why such large quantities of proprietary preparations were used, they answered rather glibly that the physicians have not been taught the art of prescription writing. I think the fault lies deeper than this: students frequently are not taught to choose a specific

drug for a specific disease and symptom and are not encouraged to apply the principles they have been taught.

Surely the young physician or the recent graduate should be familiar with the doses, actions and methods of administration of such common simple everyday remedies as tincture of nux vomica and quinine sulfate. Has too much emphasis been given to the so-called scientific side—that is the experimental research laboratory—of this subject at the expense of equipping the graduate with the necessary instructions in the art of choice of drugs, prescription writing, dosages and need for considering every patient as an individual?

In my discussions with interns, residents and men just beginning practice I have obtained much to substantiate an impression of insufficient instruction in therapeutics, in materia medica and in prescription writing. Many have volunteered the statement that pharmacology was the poorest taught subject in the medical school.

In order to obtain information on the teaching of pharmacology and prescription writing, questionnaires were sent to the departments of pharmacology of the 68 four year medical schools. Replies were received from 49 schools. A study of the replies from these 49 schools showed that there were 146 teachers responsible for instruction in pharmacology. Of this number 88 professors, or roughly one half, held the degree of doctor of medicine. Of these 146 teachers, only 43 had practiced medicine.

The number of hours devoted to pharmacology ranged from 7 to 277. All schools replied that instruction was given in prescription writing. The time devoted to this phase of pharmacology ranged from 1 to 180 hours.

It is exceedingly interesting to note some of the answers in reply to my questionnaire, such as the following: "Young graduates today cannot write prescriptions." Another pharmacologist thought the field was somewhat neglected. "It should occupy a much larger place than it does at present."

I cannot agree with the point of view expressed in some of the answers, namely: "Prescription writing is a minor item in a crowded curriculum." "Prescription writing can be given in a few hours of didactic instruction." "Prescription writing has no place in modern pharmacology." "The medical student must defer his acquaintance with many drugs until a later day." When? After his patients have died, as he learned by trial and error the intricacies of drug therapy?

It is difficult for me to understand how a professor responsible for instruction to a student can say that prescription writing has no place in modern pharmacology or that he must defer his acquaintance with many drugs until a later day. One might just as well say that the teaching of surgical technic has no place in a course in surgery.

On the other hand, I do agree with the statements that it should occupy a much larger place than it does, that prescriptions should be written in English and that they should be legible, and that instruction in this subject should be continued in the clinic.

I wish to agree with Dr. Haag's statement "I think that pharmacology should be taught primarily from the point of view of its usefulness to the practicing physician."¹ I think also that the student will profit if the instructor chooses carefully the drugs on which

1. Haag, H. B.: The Scope of Pharmacology, South. M. J. 23: 3-12 (March) 1922.

he will lecture rather than throwing out haphazardly an endless list of drugs for the student to memorize.

The prescription as written by the physician is a message to the pharmacist. If the physician cannot write a prescription, how is it possible for him to send a message to the pharmacist to compound the drugs that may be needed in an individual case? It is my opinion that the teachers giving the courses in pharmacology have lost sight of their primary function, which is to teach the student pharmacology and to lay the foundation for materia medica and therapeutics.

Pharmacology is the basis for all materia medica that the physician will practice in carrying out the responsibility of his chosen profession. Fortunately there are a good many pharmacologists keenly aware of the shortcomings of this phase of medical education.

Although the pharmacologist is fundamentally responsible for pharmacology, materia medica and therapeutics, not all of the fault may be laid at his door. The primary fault, yes, when he does not teach the fundamentals and does not teach prescription writing; but this is only part of the picture. The clinician must assume a certain amount of responsibility for continuing the student's education in materia medica and therapeutics. The time has surely passed when it was smart to be a therapeutic nihilist. Unfortunately, many clinicians lay great emphasis on pathology, diagnosis and differential diagnosis and only too frequently gloss over the treatment.

When the young doctor graduates and takes up his internship and residency, his education in therapeutics should continue. Therefore it is the obligation and the duty of the attending men to devote a certain amount of their time to the instruction of the young physician in this all important subject.

Unfortunately many hospitals, in order to save time and for various other reasons, use stock preparations, such as Dr. Carl's Cough Medicine or Dr. Anderson's Arthritis Medicine. Many times various mixtures are designated by numbers and letters. The interns and residents in these hospitals prescribe by means of these predesignated numbers and names, many times not knowing at all the contents of the prescription. I was greatly impressed at one time when called in consultation at a renowned medical center. A solution designated by name had been given to the patient for a week. The attending physician had not yet made his appearance. The residents and the interns admitted that, although the patient had been receiving this solution for a week, not one of them had any idea of its contents!

Many pharmacologists are keenly aware of this situation, and many of them have taken steps to correct it. The school of pharmacy at the University of Virginia was asked several years ago to aid in the teaching of prescription writing to medical students. In this way the more common pitfalls of prescription writing are brought to the attention of medical students. A further aid is for the instructor in therapeutics to place his teaching on a foundation of official and N. N. R. drugs and drugs of an experimental nature whose usefulness seems evident.

Teachers and practitioners alike do well to follow the statements of the Council on Pharmacy and Chemistry of the American Medical Association. This body provides publications in which are described the actions and uses of all official agents and of nonofficial agents which are found to conform to the Council's rules for

admission to New and Nonofficial Remedies. Surely a total of 2,700 official and nonofficial drugs is sufficient to meet medical drug demands. Of no small significance is the fact that use of such agents in preference to proprietary drugs will permit savings of thousands of dollars.

In some institutions, conferences on therapeutics in the form of seminars are held. There seems to be a realization on the part of some of the teachers of these deficiencies and of the need to correct them. The seminars should not be dominated by one specialty; all contributors should have equal opportunity for discussion, so that the students will appreciate the value of the composite picture of the diagnosis and treatment of disease.

It is evident that the phase in medical education which relates to drug therapy needs change. I am greatly impressed, in reviewing the questionnaires, by the large number of men that teach pharmacology who have never been engaged in the practice of medicine. I am also impressed by the "memory" courses that are often substituted for "thinking" courses; while the practice of medicine is favored by the memories of its followers, progressive treatment results only from careful thought. To achieve the progress, all who have a share in the responsibilities should pursue with actual enthusiasm their opportunities to discharge such responsibilities. On medicine depends the health of the world. On the members of the medical profession depends the future of medicine, and every challenge for improvement must be met.

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CONTINUOUS CAUDAL ANESTHESIA

ANALYSIS OF 1,200 CASES WITH COMPARISON OF METHODS

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In the last hundred years obstetrics has evolved from a series of traditional rituals into a practical science. At the beginning of this transition the important points stressed were those concerning the care and delivery of the mother. Later, as the specialty developed and mortality rates declined, it was possible to give consideration to the mother's physical suffering. Also a variety of drugs became available, with morphine, scopolamine and the barbiturates becoming the most valuable for the management of labor. Their use, however, is objectionable owing to their depressing effect on the baby. Since the discovery of local anesthesia and the technic of caudal block, many obstetric cases have been managed with single injection caudal anesthesia for the second stage. This was not satisfactory, since it was not dependable and because other analgesia was necessary up to the point of delivery. Therefore the same objection to this type of management was present, namely depression of the baby. Lemmon¹ in 1940 introduced a brilliant advance in anesthesia, that of continuous spinal anesthesia. Edwards and Hingson²

Capt. Arthur B. Levan, M. C., A. U. S., and Miss Katherine McCloskey assisted in preparing the manuscript.

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Metycaine was supplied through the courtesy of Eli Lilly & Company. Pontocaine and procaine were supplied through the courtesy of the Winthrop Chemical Company.

1. Lemmon, W. T.: A Method for Continuous Spinal Anesthesia. *Ann. Surg.* 111: 141 (Jan.) 1940.

2. Edwards, W. B., and Hingson, R. A.: Continuous Caudal Anesthesia in Obstetrics. *Am. J. Surg.* 57: 459 (Sept.) 1942.

in 1942 adapted Lemmon's technic of continuous spinal to caudal anesthesia not only for the second stage but for a large portion of the first stage of labor. My colleagues and I have used continuous caudal anesthesia in our clinic since August 1942 and have previously reported our first 300 cases.³ This report is a supple-

TABLE 1.—Breakdown of Cases

Number of pregnancies.....	1,200
First pregnancy.....	996
One or more pregnancies.....	204
Complications	
Breech presentation.....	38
Pos.....	150
.....	48
.....	102
Multiple pregnancies.....	8
Posterior face.....	1

ment to the previous one. Up to the present time we have managed 1,200 cases using this technic. A breakdown of this group may be seen in table 1.

The types of solution used were three in number: procaine hydrochloride 1.5 per cent 600 cases, metycaine 1.5 per cent 500 cases and pontocaine 0.25 per cent 100 cases. These solutions were all prepared with isotonic solution of sodium chloride. In this series 996 cases were managed without any other type of analgesia with the exception of barbiturate premedication. One hundred and thirty-two patients were treated successfully in the terminal portion of their labors with morphine, scopolamine and the barbiturates as premedication. These cases will be discussed later. Thus, 1,128 patients, or 94 per cent, were delivered successfully under caudal anesthesia without any supplemental anesthesia at time of delivery. The remaining 6 per cent necessitated supplemental anesthesia for various reasons:

1. The needle was inserted into the subarachnoid space.
2. Hysterical patients became unmanageable.
3. Disproportion of head and pelvis with prolonged labor necessitated discontinuance of the caudal anesthetic.
4. Insertion of the needle into the canal was technically impossible in 4 cases.
5. A psychotic patient who was completely disoriented could not be managed.
6. The catheter slipped out in 2 cases in which the technic of taping was faulty.
7. There were severe nausea and vomiting.
8. Frank blood was obtained on insertion of the needle.
9. There were severe radicular pains.

The largest amount of procaine hydrochloride used was 1,000 cc. of 1.5 per cent in isotonic solution of sodium chloride, and the smallest dose given was 30 cc. of 1.5 per cent solution. The largest amount of metycaine hydrochloride given was 650 cc. of 1.5 per cent solution in isotonic solution of sodium chloride and the smallest amount 25 cc. of 1.5 per cent solution. The largest amount of tetracaine (pontocaine) hydrochloride was 100 cc. of 0.25 per cent solution in isotonic solution of sodium chloride, and the smallest amount was 50 cc. of 0.25 per cent solution. After experience with these drugs we prefer the use of procaine hydrochloride in isotonic solution of sodium chloride. The advantages and disadvantages may be seen in table 2.

The average duration of anesthesia with procaine for primigravidas was six hours and twenty minutes and for multiparas two hours and forty minutes. The

average duration of anesthesia with metycaine hydrochloride was five hours for primigravidas and two hours and forty-five minutes for multiparas.

Continuous caudal anesthesia should not be used in case of (1) placenta previa and abruptio placentae, (2) disproportion between the head and pelvis, (3) gross abnormalities of the spine in the lumbosacral region, (4) patients who have had recent surgical procedures about the sacral area, such as excision of a pilonidal cyst, (5) patients with any cutaneous disease or with multiple boils or carbuncles, (6) patients who give a history of sensitivity to procaine or (7) very obese patients on whom the landmarks are not palpable.

Our series of cases may be broken down into three main groups:

Group 1. Multiparas (204 cases).

Group 2. Primigravidas when the cephalus was engaged, the cervix well effaced and labor progressing normally (792 cases).

Group 3. Primigravidas when the cephalus was not fully engaged and when the progress of labor was slow, yet contractions were severe (204 cases).

In the first two groups it made no difference at what stage of labor caudal anesthesia was started. As long as the patient was in labor, progress was not impeded and labor proceeded rapidly to termination.

In the third group caudal anesthesia alone was unsatisfactory. Caudal anesthesia could not be started in this group until the patient had progressed to 6 to 7 cm. dilatation with engagement of the head. If the anesthesia was begun before this time, dilatation was slowed and the head failed to descend into the pelvis. In

TABLE 2.—Advantages and Disadvantages of Anesthetic Agents

Agent	Advantages	Disadvantages
Procaine (600 cases) 0.25 per cent in isotonic solution of sodium chloride	1. Least toxic to mother 2. Less nausea and vomiting 3. Least toxic to baby (clinical impression) 4. Least blood pressure drop 5. Less motor paralysis (patient may move by herself in many cases)	1. Shorter duration of anesthesia (about 65 minutes for 20 cc.) 2. Longer delay (about 10 minutes) for anes- thetic to take effect
Metycaine (500 cases) 1.5 per cent in isotonic solution of sodium chloride	1. Longer duration of anesthesia (about 1 hour for 20 cc.) 2. More rapid anesthesia (within 5 minutes)	1. More nausea and vomiting 2. More toxic to mother 3. More toxic to baby (clinical impression) 4. Greater blood pres- sure drop 5. Complete motor paralysis
Tetracaine (100 cases) 0.25 per cent in isotonic solution of sodium chloride	1. Practically no nausea and vomiting 2. Long duration of anesthesia (2-4 hours after 20 cc.) 3. No toxicity to baby (clinical impression from short series of cases)	1. Longest delay for anesthetic to take effect (about 30 min.) 2. Complete motor paralysis 3. Difficult to keep anesthesia at con- stant level owing to prolonged latent period of action of the drug (in 1 case anes- thesia persisted for 6 hours after injec- tion was stopped)

cases in which caudal anesthesia was begun prior to 6 cm. dilatation, a two hour interval without anesthesia was necessary to allow for complete dilatation of the cervix and descent of the head to the pelvic floor. This was not due to failure of the anesthesia, as all of these patients were subsequently delivered satisfactorily with caudal anesthesia alone. From the patient's point of view it is not desirable to have complete anesthesia for a long period and then suddenly experience the excruciating pains of the terminal portion of the first stage

3. Siever, J. M., and Mousel, L. H.: Continuous Caudal Anesthesia in Three Hundred Unselected Cases, J. A. M. A. 123: 424 (June 12) 1943.

of labor. Therefore it has been our policy to grade all patients on admission to the labor room so that they fall into one of the groups mentioned. We allow the first two groups of patients to ask for the anesthetic when they believe that they need relief. The third group of patients are managed by an entirely different method. When their pains become severe they are given a barbiturate and/or morphine and scopolamine and are managed with these drugs until the head descends to a plus 1 or 2 station and usually to 6 or 7 cm. dilatation. At this time caudal anesthesia is begun. By the time delivery is imminent the general analgesics have been dissipated, and at delivery no depressing effect on the child is noted. In our enthusiasm over continuous caudal anesthesia it is well not to forget the other methods of analgesia, for in many cases the combination of the two methods results in a much better management of labor than either method alone.

In all three groups we have found that the second stage of labor is greatly altered. This is particularly true among primigravidas. The alteration is due to two things: (1) the patient's having no desire to bear down, owing to anesthesia of the pelvic structures and (2) relaxation of the pelvic floor and perineum.

Anesthesia of the pelvic structures results in the patient's having no desire to bear down; therefore, if the attending physician is not watchful, the head may impinge on the perineum for hours. The relaxed pelvic floor slows the normal mechanism of flexion and rotation which occurs when the head comes in contact with the ordinarily elastic tissues. The combination of these two mechanisms may result in a second stage so prolonged as to be disastrous to the baby if the labor is not terminated by the obstetrician. Many patients, both primigravidas and multigravidas, are able to expel the baby when instructed to do so. However, in the majority of such cases more than two hours is necessary for completion of the second stage. It is our belief that more than two hours on the perineum is dangerous to the welfare of the infant. For this reason we routinely perform an episiotomy and utilize outlet forceps on our patients.

Persistent posterior positions occurred in 12 per cent of this series, whereas we previously observed it in only 4 per cent. This high percentage of posterior positions is attributed to the relaxation of the pelvic floor, with the resultant failure of a large number to rotate spontaneously. This is not a serious complication, since the extreme relaxation facilitates rotation either manually or with forceps.

We have managed 38 breech presentations with continuous caudal anesthesia. Progress was normal in all of these, and delivery of the head was considerably easier because of the relaxation of the pelvic floor. Eight sets of twins have been delivered with continuous caudal anesthesia. In all of these labors, progress was normal and delivery was greatly simplified. As caudal anesthesia does not have a depressing effect on the infant, it is particularly desirable in the management of labor in multiple pregnancies.

In our first 400 cases no oxytocics were given until after delivery of the placenta. Since that time we have used ergonovine hydracrylate $\frac{1}{320}$ grain (0.2 mg.) intravenously after delivery of the baby. The ergonovine is administered by the nurse after the physician is through caring for the baby and has returned his attention to the patient. We have found this to be satisfactory and have had only 1 retained placenta in our last 800 cases.

The over-all length of labor is increased with caudal anesthesia probably from one to two hours. This is attributed to the prolongation of the second stage of labor. The third stage of labor is shortened and hemorrhage is less than when general anesthesia is used.

The ease with which delivery is accomplished with continuous caudal anesthesia is an important advantage. No time is wasted by induction, as with general anesthesia. The patient is cooperative and in many cases is able to move from the delivery table to the carriage without help.

EFFECT ON THE BABY

Our gross fetal mortality was 32 deaths, or 2.6 per cent. Reference to table 3 will show the causes of fetal death.

When procaine hydrochloride was used, it was noted that slowing of the fetal heart rate occurred shortly after injection of the solution in 1 per cent of the cases. In the cases in which slowing of the heart rate was observed, meconium was expelled in large quantities by the baby after repeated injections. In the series receiving metycaine hydrochloride 20 per cent showed slowing of the fetal heart rate shortly after injection;

TABLE 3.—*Causes of Fetal Deaths*

Premature (less than 30 weeks).....	14
Stillborn (dead before admission to hospital).....	7
Stillborn (cause unknown; babies viable on admission to hospital and died before delivery; autopsies in all cases).....	5
Monster	4
Cerebral hemorrhage	2

in these cases also large quantities of meconium were expelled, in many of them after the second injection of the solution. Four of the infants in this series were stillborn, and at autopsy nothing abnormal was revealed except diffuse edema of the brain. One fetus died in utero five minutes after the third injection. Within two minutes after the injection the fetal heart began to slow, and it gradually became weaker and weaker until it completely stopped. All of these stillborn infants died in the first stage of labor. Prior to our use of caudal anesthesia we had only 1 full term stillbirth in 1,200 cases at this clinic. In the metycaine series of 500 cases we had 4 full term normal stillbirths. All of these fatalities were of babies who were alive when the patient entered the hospital, the deaths occurring during labor and before delivery. This is a small series of cases and no definite conclusions can be drawn, but it is our impression that these deaths were caused by the drugs used. Work is now in progress at this clinic which we believe will substantiate this theory. Since less fetal distress was noted in the procaine series, we believe that procaine is a safer and less toxic drug from the standpoint of the baby than any other drug used.

COMPLICATIONS

The complications attending this type of anesthesia may be grouped under five separate headings: (1) infection, (2) injection into the subarachnoid space, (3) circulatory collapse, (4) sensitivity to the drug used and (5) miscellaneous.

Infection is the most serious of these complications. Up to the present time the only death reported from this anesthesia has been that of Hingson and Edwards,⁴ from infection in the caudal area. We have had 2

4. Hingson, R. A., and Edwards, W. R.: Continuous Caudal Anesthesia, *J. A. M. A.* 123: 538 (Oct. 30) 1933.

such infections, 1 of which completely cleared up with sulfonamide therapy. In the other a laminectomy was performed and the patient was found to have an arachnoiditis. Adhesions were broken up and nerve roots freed. She is gradually recovering bladder function and the use of her legs, but the prognosis is guarded. The importance of rigid aseptic technic cannot be stressed enough, for this is the only method by which infection can be prevented. In addition, the location of the injection should be very carefully prepared. We advocate the use of soap and water followed by alcohol and ether; the part is then painted with an antiseptic solution. If an infection does occur, it is important that early treatment be instituted. If treated early, through and through drainage with large needles inserted into the sacral foramina and into the caudal canal is the method of choice. As an adjunct, massive doses of a sulfonamide by mouth should be given. If penicillin is available, it may be substituted as the irrigating agent. Should this method not bring the infection under control, a laminectomy should be performed with complete open drainage.

Injection into the subarachnoid space is a danger which can be avoided when certain precautions are taken. If the small indwelling needle is used, a test dose of 8 cc. of solution should be used prior to each injection, as outlined by Gready.⁵ It is unsafe to depend on aspiration to ascertain whether the dura has been entered. The test dose should be given before each injection, because the needle may slip in and out or move from side to side and become lodged in the dura between injections. In addition to this precaution, the test developed by Block and Rotstein⁶ in conjunction with the continuous drip method is of value.

If the indwelling catheter is used, the aspiration technic is of more value, owing to the larger lumen of the needle. We have used this technic in our cases. In 1,200 cases we have penetrated the dura three times. In these cases aspiration immediately produced spinal fluid. In the last 600 cases we have used continuous drip caudal anesthesia after the method of Block and Rotstein,⁶ using their drip test in addition to aspiration to determine the position of the needle. When the dura is penetrated, the needle should be withdrawn and the labor managed by some other method. In the event a large quantity of solution is injected into the subarachnoid space, treatment should be instituted immediately. The following measures are advocated:

1. Forced spinal drainage through a large spinal needle.
2. Semi-Fowler's position.
3. Inhalations of 95 per cent oxygen.
4. Artificial respiration if necessary.

Circulatory collapse has become a minimal danger in our clinic. This has been alleviated by premedication with ephedrine $\frac{3}{8}$ grain (0.024 Gm.) and seconal $1\frac{1}{2}$ grains (0.1 Gm.). We also use 5 minims (0.3 cc.) of epinephrine to each hundred cubic centimeters of anesthetic solution. If the systolic pressure falls below 100 mm. of mercury, it is advisable to give ephedrine $\frac{3}{8}$ grain subcutaneously or intravenously. This is necessary in only a small percentage of cases. The epinephrine in the anesthetic solution by its vasoconstricting action delays the absorption of the agent and

thus prolongs its action locally. This to some extent prevents the sudden fall of blood pressure incident to induction of caudal anesthesia and hence contributes to the well-being of the patient and prevents much of the nausea and vomiting.

No toxic reactions have been obtained which could be attributed to drug sensitivity. Cases of convulsions and sensitivity reactions have been reported from other clinics. For this reason it is our practice to premedicate all our patients with one of the barbiturates. Sodium amytal for intravenous use should be kept in the labor room at all times and given immediately if any symptom of sensitivity is noted.

Bladder Dysfunction.—Only 4 per cent of our 600 patients who were given procaine hydrochloride required catheterization after delivery. Two per cent of this series required catheterization more than once. Of 500 patients managed with metycaine hydrochloride 15 per cent had to be catheterized after delivery and 5 per cent of these required catheterization more than once. Three patients in this series did not void spontaneously for over two weeks, and it was necessary to catheterize 1 over a four week period. In both the procaine and the metycaine series the solutions were prepared in the same way; that is, 1.5 per cent solution in isotonic solution of sodium chloride. It is our impression that this difference in the incidence of bladder dysfunction is another indication of the greater toxicity of metycaine. The bladder should be emptied before anesthesia is started and distention avoided throughout labor.

Headaches.—Three per cent of our patients complained of mild headaches at the base of the skull after several hours of anesthesia. These were all transient, and there were no cases in which chronic headache developed post partum.

Nausea and Vomiting.—Before we used the continuous drip technic, 25 per cent of our patients experienced nausea and vomiting during the anesthesia. Since the change to the continuous drip method, the incidence of nausea and vomiting has been only 10 per cent. We attribute this to decreased pressure in the caudal canal when the continuous drip method is used. It will be impossible to alleviate these symptoms completely, as it is well known that the patients under any type of analgesia will have nausea and vomiting during the course of labor.

Backache.—Backaches were observed in 5 per cent of our patients, but these were transient and no chronic backaches developed post partum. Most of the backaches observed were in those patients who were allowed to stay in one position for too long a period. The patient's position should be changed every thirty minutes during the anesthesia. This calls for constant and careful nursing care.

In 1,200 cases managed with continuous caudal technic there has been no maternal mortality.

COMPARISON OF METHODS

*Indwelling Catheter Method.*⁷—Advantages:

1. There is less trauma to the caudal canal, owing to a flexible catheter which will not tear blood vessels and structures in the canal.
2. The patient is more comfortable; she may move from side to side with impunity or may lie on her back with no fear of breakage or trauma.

5. Gready, T. G., Jr.: Some Complications of Caudal Anesthesia and Their Management, J. A. M. A. 123: 671 (Nov. 13) 1943.
6. Block, N., and Rotstein, M.: Continuous Drip Caudal Anesthesia in Obstetrics, J. A. M. A. 122: 582 (June 26) 1943.

7. Manalan, S. A.: Caudal Block Anesthesia in Obstetrics, J. Indiana M. A. 35: 564 (Oct.) 1942.

3. There is less chance of infection, owing to the fact that the catheter is sealed in place with waterproof tape so that discharges cannot reach the site of injection.

4. Patients are easier to handle; it is not necessary to keep them in any one position and they may be moved into any position without fear of breakage or trauma.

5. Unilateral anesthesia is nil, as it is not necessary to keep the patient on her side throughout labor.

Disadvantages:

1. Technical: It has been reported that in other clinics some difficulties have arisen in inserting the 15 gage needle through the sacral hiatus. We have had only 4 cases in which it was impossible to insert the needle into the canal.

2. Trauma: With the use of the 15 gage needle more trauma is experienced by the soft tissues, but this is more than compensated for by the insertion of a flexible catheter for the duration of labor.

Indwelling Needle Technic.—Advantages:

1. There is less trauma to the soft tissues, owing to the insertion of a smaller needle.

2. It is simple. The needle is inserted and left in place.

Disadvantages:

1. There is needle breakage.

2. The needle may slip out of place either into the dura or completely out of the canal.

3. The patient must be kept on her side all during labor, which is uncomfortable for the patient and difficult for nursing care.

4. More chances exist for infection, as it is impossible to seal the needle in place and to keep it from slipping in and out of the canal.

5. More trauma occurs to the caudal canal, as with each movement of the hub of the needle the point will sweep through a large arc, which may tear blood vessels and even the dura.

6. There is increased incidence of unilateral anesthesia, as the patient must be kept on her side throughout labor.

Indwelling Catheter Technic.—1. The patient is placed on her right side in a modified Sims' position and close to the side of the bed.

2. The lumbosacral region is scrubbed with soap and water followed by alcohol and ether. Tincture of merthiolate then is applied to the region and sterile drapes are put in place.

3. Procaine hydrochloride 1.5 per cent solution is prepared by adding the contents of two 5 cc. ampules of 20 per cent procaine hydrochloride to 125 cc. of sterile isotonic solution of sodium chloride.

4. A skin wheal is raised over the sacrococcygeal ligament. A 15 gage needle is passed through the skin wheal and is advanced through the sacrococcygeal ligament. After the tip of the needle comes in contact with bone on the anterior border of the caudal canal, the needle is rotated 90 degrees to bring its bevel against the bone. The hub is depressed and the needle is then advanced about 1 inch (2.5 cm.). A glass syringe containing 25 cc. of the anesthetic solution is attached to the needle and 1 or 2 cc. of the anesthetic solution is injected to clear the needle of any obstruction. The plunger is withdrawn gently in order to make sure that the tip of the needle is not lying within the lumen of a blood vessel or within the subarachnoid space. Twenty-five cc. of the anesthetic solution is then injected slowly into the caudal canal.

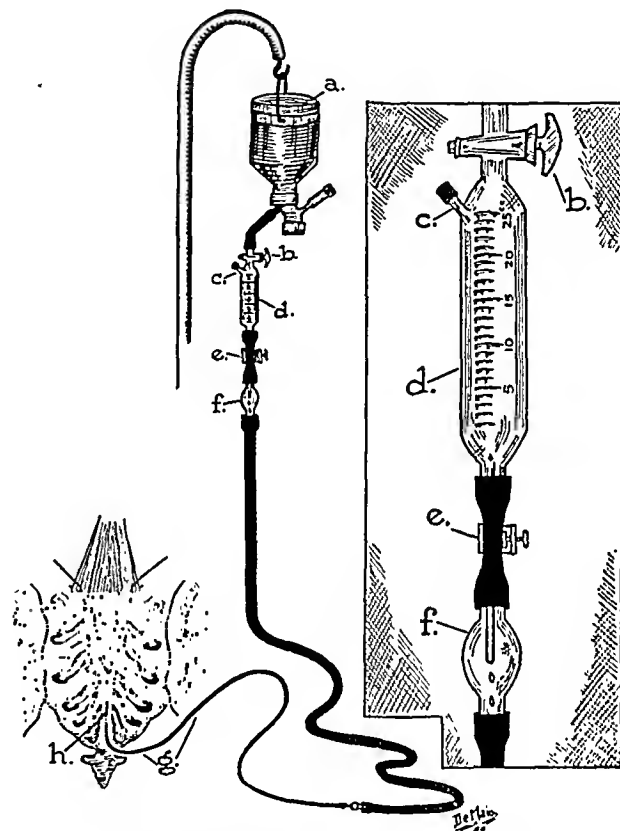
5. As soon as the initial dose has been injected the syringe is detached from the needle and a No. 4 French nylon ureteral catheter which has been sterilized in an autoclave is passed through the needle and is advanced until the tip of the catheter is approximately 1½ inches

(3.8 cm.) above the sacral hiatus; the needle is then removed over the catheter.

6. The catheter is padded with sterile gauze at the point of entrance into the skin and brought over the patient's back to her flank, and the entire region is sealed with waterproof adhesive tape to prevent soiling from the perineum.

7. The patient may now be turned on her back and made comfortable in any position that she desires.

8. A continuous drip is attached to the catheter and is set to deliver 20 cc. per hour. If at the end of an hour the level of anesthesia is too high or too low, the drip may be either increased or decreased proportionately.



Apparatus: a, main reservoir; b, stop cock; c, air vent with filter; d, graduated glass cylinder with regulation clamp to regulate number of drops per minute; f, vacuum drip; g, nylon number 4 ureteral catheter; h, sacral hiatus.

The gravity apparatus used at this clinic is a modification of that used by Bloek and Rotstein.⁶ A glass cylinder graduated in cubic centimeters is interposed between the drip and the main reservoir containing the anesthetic solution. This cylinder receives the solution from the main reservoir and subsequently delivers it to the drip. At hourly intervals 15 to 25 cc. of the solution, depending on the level of the patient's anesthesia, is turned into the cylinder. During the succeeding hour the cylinder is slowly emptied by the gravity drip and the solution is allowed to run into the caudal canal. By using this modification it is possible to combine the advantages of the multiple injection method with that of the gravity method. A definite amount of solution may be given at required intervals and yet may be given slowly by gravity, as shown in the illustration.

We prefer the use of the continuous drip for the following reasons:

1. Placement of the catheter in the soft tissue overlying the sacrum is easily detected, since pressure over the sacrum stops the flow of the anesthetic agent through the drip apparatus.
2. Chance of infection is decreased, owing to a completely closed system.
3. It is the most simple type of apparatus.
4. The level of anesthesia is relatively constant. With other methods the level of anesthesia is constantly rising and falling.
5. There are reduced volume of agent and pressure in the caudal canal, which, together with the constant level of anesthesia, we believe accounts for the decreased incidence of nausea and vomiting obtained with this method.
6. The total amount of anesthetic used is less. In our 600 cases in which the drip method was used, the amount of solution used per hour to keep the level of anesthesia at the umbilicus was 25 per cent less than in our previous series.
7. Our modification makes it possible to obtain all the advantages of both the multiple injection and the gravity method.

CONTINUOUS CAUDAL ANESTHESIA IN ECLAMPSIA

In a previous communication we³ reported the use of continuous caudal anesthesia in the management of 3 cases of eclampsia. Since that time we have used this method with similar dramatic results in 2 other cases, 1 of which is summarized:

The patient was admitted to the hospital with a blood pressure of 180 systolic, 100 diastolic. She was not in labor but was within two weeks of term. A history was given of four convulsions previous to admission. The patient had been in coma for approximately three hours. Urinalysis from a catheterized specimen showed a 4 plus reaction for albumin; otherwise results of laboratory examinations were negative. On rectal examination it was found that the head had descended to a 2 plus station and the cervix was effaced and patulous. At this time the membranes were ruptured. Within two hours labor was well established, and continuous caudal anesthesia was started. The patient's blood pressure dropped within twenty minutes to 140/80. About an hour after caudal anesthesia was started the patient reacted and was rational for the first time since admission. The blood pressure remained between 140 and 150/90 throughout the entire course of labor, which lasted eight hours, and was delivered of a normal living child. The caudal anesthesia was continued for eight hours after delivery, after which sedation was used. She had no recurrence of convulsions, and both mother and baby made an uneventful recovery.

In eclamptic patients the blood pressure should be watched closely, as a large drop in blood pressure is the rule.

CONCLUSIONS

1. Continuous caudal anesthesia is a valuable part of the armamentarium of the obstetrician. It should not be forgotten that other methods of analgesia are valuable and should be used in conjunction with continuous caudal anesthesia when circumstances warrant it.
2. Continuous caudal anesthesia should be used only by a competent obstetrician, as its use necessitates a larger percentage of operative deliveries and increases obstetric complications if not properly used.
3. Operative deliveries are greatly facilitated by the complete relaxation of the perineum.

4. It is my impression from clinical observation that certain babies become toxic from the drugs used and show fetal distress. The fetal heart rate should be checked frequently during labor, and at the first sign of distress the anesthesia should be discontinued or labor terminated.

5. It has been my experience that procaine hydrochloride will give the desired results with less toxicity to both the mother and the baby. Therefore I see no reason for using a more toxic drug.

6. Babies born under continuous caudal anesthesia are awake at birth and need no resuscitation. This is one of the greatest advantages of continuous caudal anesthesia.

7. Continuous caudal anesthesia has proved to be of value in the management of eclampsia. Five cases have been managed in this clinic with no fetal or maternal mortality.

8. Continuous drip administration has in our hands proved to be the greatest technical advance introduced in continuous caudal anesthesia.

9. All patients should be premedicated with a barbiturate. In addition it is advisable to premedicate each patient with $\frac{3}{8}$ grain (0.024 Gm.) of ephedrine to alleviate the possibility of circulatory collapse.

10. The indwelling ureteral catheter technic is safer, less traumatic and more comfortable to the patient.

11. Absolute asepsis must be observed at all times.

TERMINAL CAUDAL ANESTHESIA IN OBSTETRICS

A REVIEW OF 800 CASES

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The introduction in recent years of caudal block as a method of obstetric anesthesia and, in particular, the extensive publicity given it have aroused considerable controversy as to its proper position in obstetric practice and its adaptability to general use.

That caudal anesthesia is of real value cannot be denied, and that it warrants continued clinical investigation to reveal completely its already established merits and potentialities is a foregone conclusion. Solution of the problem will come with widespread knowledge of the technical details of the procedure and from repeated critical reviews of clinical results in a sufficiently large number of cases to allow for accurate statistical analysis and interpretation. It is with the purpose of providing additional data that this summary of 800 cases of terminal caudal anesthesia seeks its justification.

This series of 800 cases of terminal caudal anesthesia was begun in the obstetric department of the Milwaukee County Hospital in 1939 by Lahmann, Mietus and Mitchell and was continued by succeeding house physicians.

CASES

This group is composed principally of primigravidas (722 cases) with the addition of some multiparas (78 cases) for whom operative procedures were indicated. The extent of anesthesia was sufficient to permit its

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employment in a wide variety of obstetric procedures varying in complexity from cesarean section (20 cases) to spontaneous birth. Seventy-eight women (16 multiparas and 62 primiparas) were allowed to deliver spontaneously, indicating that caudal anesthesia does not preclude spontaneous delivery or necessarily require operative intervention. The most frequently employed operative maneuver was the application of low outlet forceps and episiotomy, performed in 626 cases. Mid-plane forceps were applied in 24 cases. This preponderance of forceps deliveries is not necessarily related to the type of anesthesia used but merely reflects the policy of our obstetric department, which is to use prophylactic outlet forceps routinely on all primigravidas. The spontaneous deliveries in this series constituted a test of the efficiency of the method under those circumstances and included a number of patients who were able to deliver spontaneously without either knowledge of their progress or any voluntary expulsive efforts on their part. The remainder required the assistance of the abdominal musculature during uterine contractions, as indicated to the parturient by the operator, who held his hand on the abdomen of the mother.

Among the operative cases were 42 breech extractions, 40 transverse application of blades, 26 posterior blades, including rotation, by one of several standard techniques, 3 versions and extractions and the single insertion of a metreurynter. In all these instances the anesthesia provided excellent relaxation of the pelvic floor, permitting a wide range of maneuverability and ease of application of instruments. A number of patients in whom a serious disease existed, 7 cardiac, 5 suffering from pulmonary tuberculosis and 7 with toxemia, were delivered without untoward incident, further evidence of the general safety of this method.

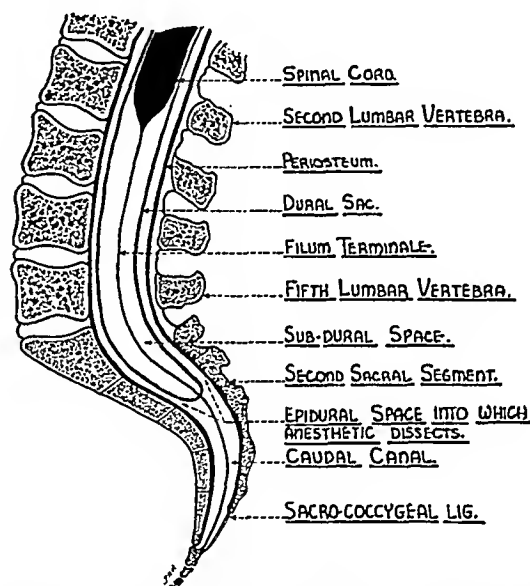
ANATOMY AND PHYSIOLOGY

The technic employed was constant; a single injection method of terminal anesthesia was used in all cases. Continuous caudal anesthesia was not attempted, and no comparison of the two methods is considered here. The basis of the method lies in the anatomic structure of the sacral canal, which provides an easily available site for the injection of the anesthetic agent into the epidural space about the sacral and lumbar nerve roots. This canal—a continuation of the spinal canal—terminates posteriorly and caudally in a hiatus formed by the defective fusion of the last sacral laminae and covered only by the sacrococcygeal membrane, subcutis and skin. This hiatus varies in size from a thumbnail to a mere dehiscence between the laminae but in most instances can be palpated as a triangular depression, marked at the apex by the spinous process of the fourth sacral vertebra and laterally by the prominent cornua of the fifth sacral vertebra, all of which can be identified by the method to be described. The epidural space at this point is occupied by vascular, adipose and areolar tissue, as well as the ensheathed sacral and lumbar nerves, and extends anteriorly (or cephalad) for a sufficient distance to provide a considerable margin of safety for insertion of the needle, without undue fear of dural puncture and massive spinal anesthesia. The dural sac usually terminates at the level of the second sacral vertebra. The remainder of the epidural space, which terminates superiorly with the insertion of the dural sac around the foramen magnum, is only a potential cavity, lying between the endosteum of the vertebrae and the dura mater. It is into this potential space that

the anesthetic dissects its way to bathe nerve roots at higher levels when the quantity of anesthetic is in excess of that which can be conveniently accommodated in the sacral canal. Thus it can be seen that the duration of anesthesia remains for the most part an inherent property of the drug, whereas its effective radius depends on the quantity of agent used.¹

TECHNIC

The procedure followed at the Milwaukee County Hospital requires no special equipment and utilizes material easily available. Since a single injection terminal anesthesia is used, the injection is not given until the presenting part is just visible at the introitus: a time when the primigravida requires one and one-half to two hours of strenuous labor before delivery is effected. The patient assumes either a knee-chest or a left-lateral recumbent position; the sacrococcygeal area is cleansed with soap and water; an antiseptic



Diagrammatic representation of the lower end of the spinal column, showing the levels to which the spinal cord and dural sac usually descend and the area into which the anesthetic agent is placed.

tincture (iodine) is applied and removed with alcohol; the sacral hiatus is located by the method to be described; a number 19 gage spinal tap needle of the usual type is inserted into the hiatus and thence into the sacral canal and tested for possible penetration into blood vessels or subdural space. Forty cc. of a 2 per cent solution of metycaine is injected slowly (the patient frequently experiencing cramps in her legs); the needle is withdrawn and the patient prepared for delivery.

These successive steps warrant more detailed discussion for the purpose of clarification and differentiation from other variations in use elsewhere:

1. It should be noted that specific preoperative medication directed against the caudal injection is omitted. There is a difference of opinion as to its desirability. Campbell² advises the preoperative use of a barbiturate as a prophylactic agent against possible toxic effects of the anesthetic. Pritchard³ recommends $1\frac{1}{2}$ to 3 grains (0.1 to 0.2 Gm.) of pentobarbital sodium one-half

1. Thompson, J. E.: An Anatomical and Experimental Study of Sacral Anesthesia, *Ann. Surg.* 66: 718 (Dec.) 1917.

2. Campbell, W. C.: Sacral Block and High Caudal Block Anesthesia, *Proc. Staff Meet., Mayo Clin.* 10: 667 (Oct. 16) 1935.

3. Pritchard, W.: Caudal Anesthesia, *J. Urol.* 46: 514 (Sept.) 1941.

hour before the injection. Hopp,⁴ using the same anesthetic (procaine hydrochloride), states that he has seen fewer reactions when no premedication was used. In our experience with metycaine, although morphine, scopolamine and the barbiturates were occasionally given very early in labor for obstetric amnesia and analgesia, no specific medication was employed against possible toxic effects of the metycaine. Toxic complications were outstanding by their absence, indicating that barbiturate premedication is not essential.

2. In regard to the position (preparatory to injection of the anesthetic), the patient is obviously much more comfortable in a left-lateral recumbent, with legs moderately flexed, than in an awkward knee-chest position. In the former, however, the shifting of the soft tissues may make the palpation of the sacral hiatus more difficult and confusing and may lead to many failures. In this regard it should be emphasized that the bony landmarks alone, and not the gluteal fold or any other soft parts, should be used to identify the sacral hiatus. The knee-chest position, since there is less anatomic distortion, favors the less experienced operator by accentuating the landmarks.

3. Preparation of the site of injection is reduced to the simplest form consistent with the avoidance of infection. The ordinary precautions just listed are employed. The operator scrubs for three minutes. Nor have we found it necessary to use elaborate measures of protection subsequent to withdrawal of the needle. No infections of any kind were seen in this series. We would not care to go on record as implying that laxity or carelessness is to be condoned, but what we are trying to say is that the method is not so technically complex that heroically guarded measures must be instituted.

4. Palpation of the sacral hiatus varies in difficulty. The method of Haines,⁵ utilizing an equilateral triangle, the base of which represents a line drawn between the posterior superior iliac spines and the apex then falling on the sacral hiatus, is undoubtedly of value, particularly in obese patients, but has proved cumbersome in our hands. A simpler method, which we have found to be satisfactory, consists in placing the tip of the index finger of the left hand on the end of the coccyx and allowing the finger to fall back on the spinal column. The sacral hiatus is then identified as a depressed triangle in the region of the middle of the first phalanx of the index finger. The hiatus identified, the patient is told that she will feel a little needle prick, and the needle is quickly and expeditiously forced through the cutis at the level of the lateral cornua, the sacrococcygeal membrane penetrated, the hub of the needle depressed 45 degrees and the needle advanced for about 3 centimeters into the canal.

5. Although cutaneous and subcutaneous infiltration with an anesthetic are recommended by many,⁶ we consider it to be unnecessary, as the discomfort accompanying penetration with the caudal needle when done deftly and with dispatch is of little moment. Aside from obscuring the palpable landmarks and rendering an essentially simple procedure technically complex in

addition to predisposing to local infection because of the added tissue trauma, preliminary infiltration accomplishes little. There is no doubt in our minds that there is a relationship between our abstinence from local infiltration and the absence of any infection in our series. In our opinion, preliminary infiltration is entirely unnecessary and should be relegated to superfluity.

6. Once the needle is in position, it must be tested for possible penetration of a vein or the subdural space. The first is heralded by the aspiration or appearance of blood and requires merely the adjustment of the position of the needle or, occasionally, withdrawal and reinsertion. Puncture of the dura is immediately apparent because of the release or aspiration of cerebrospinal fluid. This necessitates the abandonment of the procedure, since the anesthetic may seep from the epidural into the subdural space by way of the dural puncture, producing a dangerously massive spinal anesthesia. It is our impression, however, that the danger of entering the dural sac via the sacral canal has been greatly overrated. This series has not been marred by any broken needles or by the penetration of any dural sac. We are ready to admit that penetration of the dural sac is certainly within the realm of possibility, particularly in those instances in which the dural sac extends to an abnormally low level. However, should penetration of the dural sac occur in an unusual case, this fact would become apparent at once by the appearance of cerebrospinal fluid when the stilet of the needle is withdrawn, just as it occurs anywhere along the spinal column when penetration of the dura is effected. Entrance of the needle into the subarachnoid space via the sacral canal is not only unlikely, but, should it occur, there would be nothing occult or mysterious about its presence there. It is for this reason that we do not subscribe to the preliminary injection of 8 cc. of anesthetic agent into the sacral canal as advocated by others⁷ to see whether or not spinal anesthesia develops. This is merely another unnecessary step which is serving to make an essentially simple technic cumbersome. Thus the simplest precautions furnish ample security.

ANESTHETIC

Metycaine was the anesthetic used in our entire series. This drug was preferred to others of a similar nature because of its greater efficacy, rapidity and dependability of action and its somewhat lesser degree of toxicity. The average dose was 40 cc. of a 2 per cent solution. A 2 per cent solution was used rather than the 1.5 per cent solution because of its greater penetrability and the consistency of results obtained. Hopp⁴ points out that the nerves passing through the epidural space are covered by an usually thick dural sheath, and an anesthetic, to be effective, must be of sufficient concentration to penetrate the sheaths not only near the hiatus but also those at higher levels. The quantity of solution used is calculated to reach the level of the tenth thoracic nerve. Since the solution extends into the canal only by mechanical dissection of the adipose and areolar tissue of the epidural space, the position of the patient does not affect it, and it is entirely within the control of the operator. Grodinsky⁸ demonstrated that 40 cc. of fluid would generally occupy

4. Hopp, E. S.: *Painless Labor—Caudal Block in Obstetrical Anesthesia*, *Mil. Surgeon* 89: 675 (Oct.) 1941.

5. Haines, W. H.; Mumey, N., and Faber, E. F.: *Caudal Anesthesia in Urology: New Method for Locating Sacral Hiatus*, *Internat. Clin.* 2: 85 (June) 1924.

6. Adams, R. C.; Lundy, J. S., and Seldon, T. H.: *Continuous Caudal Anesthesia or Analgesia*, *J. A. M. A.* 122: 152 (May 15) 1943.
Manalan, S. A.: *Caudal Block Anesthesia in Obstetrics*, *J. Indiana M. A.* 35: 564 (Oct.) 1942.

7. Hingson, R. A., and Edwards, W. B.: *Continuous Caudal Analgesia in Obstetrics*, *J. A. M. A.* 121: 225 (Jan. 23) 1943.

8. Grodinsky, M., and Best, R. R.: *Sacral Anesthesia: An Experimental and Clinical Study*, *J. Urol.* 22: 187 (Aug.) 1929.

the epidural space to the level of the seventh to tenth thoracic nerve. He injected dissecting room cadavers epidurally, through the sacral hiatus, with a 1 per cent aqueous solution of methylene blue and compared the levels to which the stain ascended with the levels of anesthesia obtained when an equal quantity of 1 per cent procaine was injected similarly into the living subject. The hypesthesia and hypalgesia in the 40 cc. procaine injections reached to the level of the eighth or ninth thoracic vertebra, and the stain in the 40 cc. cadaver injections reached an almost similar level. At the level of the eleventh, all sensory impulses from the uterus and perineum are blocked. Epinephrine was scrupulously avoided, since it has been shown that this drug not only causes the uterine musculature to relax, thus predisposing to postpartum hemorrhage, but also inhibits uterine contractions.⁹ It is our belief that less so-called toxic effects attributed to metycaine will be encountered if epinephrine is avoided.

RESULTS

From the standpoint of anesthesia obtained, we have considered as successful those cases in which there was complete freedom of all uterine, perineal and traction pain and in which there was no limitation of obstetric manipulation. Of the total of 800 cases, 710 (88.8 per cent) fell into this category of completely successful anesthesia. The remaining 90 cases (11.2 per cent) were either completely or partially unsuccessful and fell into one of the two following groups:

In 36 cases (4.5 per cent) there was failure to obtain any anesthetic action whatever from the injection.

In 54 cases (6.7 per cent) there were partial failures of various types.

Complete failures were ascribed solely to faults in technic, possibly justified in some instances by anomalies in the anatomic structure of the sacrococcygeal area. Those instances in which the needle very visibly failed to find its mark and in which, therefore, no material was injected are also included as complete failures. The partial failures included those cases in which the anesthesia was incomplete. Some of these patients obtained only unilateral anesthesia (unrelated to the position of the patient); others developed perineal anesthesia but retained perception of uterine pain, and in some the reverse was true. These bizarre effects are not easily explained. Some may be due to the fact that the anesthetic agent never entered the sacral canal but merely bathed a few nerve filaments after they had emerged from the canal. Some may be due to the fact that the anesthetic agent, although present in the canal, was mechanically inhibited from reaching the nerves. Others may have their basis in peculiarities in the anatomy of the sacral canal. An opinion which we have shared for a long time which might explain unilateral anesthesia concerns itself with a greatly hypertrophied filum terminale, which by dividing the caudal canal into two sections mechanically prohibits the metycaine from reaching both sides.

The time of onset of anesthesia varied from three to fifteen minutes, and the patient was ready for delivery within ten to fifteen minutes. The average duration of the anesthesia (measured in the first 600 cases) was one hour and twenty-nine minutes. Anesthesia extended to the umbilicus in most instances.

COMPLICATIONS

Anesthetic complications were few. Except for a temporary drop in arterial tension of 20 to 30 millimeters of mercury, systolic, which was seen in the majority of patients, the total number of side reactions did not exceed 4 per cent. These consisted of transient disorientation, nausea, vomiting, blurring of vision and convulsions. All were so evanescent in nature that there was scarcely sufficient time to institute therapy. Only 6 of the convulsive cases were prolonged (one or two minutes), and these responded quickly to carbon dioxide-oxygen mixture and ephedrine. There were no delayed complications. The transitory nature of these reactions leads one to suspect that they may be based on the sudden increase in intraspinal pressure occasioned by the too rapid injection of the solution rather than on any specific toxic effect of the drug. It has been shown repeatedly that the central nervous system does not readily tolerate sudden changes in cerebrospinal fluid pressure. The convulsions may perhaps be explained by the transmission of an increased cerebrospinal fluid pressure from the caudal portion of the dural sac to the higher centers. This would occur in those instances in which the caudal canal was small and when the anesthetic agent found temporary difficulty in dissecting its way upward. Under these circumstances the rapid injection of the anesthetic agent would result in pressure against the dural sac, which would then be transmitted along the cerebrospinal fluid to the upper centers. As the drug begins to dissect its way upward, between the periosteum and the dural sac, the pressure in the caudal canal is rapidly dissipated and the convulsion ceases. Because of the transient nature of these seizures we feel that sensitivity to the drug, or inadvertent intravascular injection of the anesthetic agent, though extremely dangerous, is of little or no etiologic significance in regard to the convulsions. Sensitivities endure longer, and toxic substances within the vascular tree require greater time for detoxification.

The condition of the parturient subsequent to delivery illustrates many advantages of the method. The retention of the motor impulses causes the uterus to remain in excellent tonus, so that it contracts rapidly and firmly, providing prompt and ready placental separation and reducing postpartum hemorrhage to a minimum. This paucity of bleeding is remarkably evident not only during delivery from below but also at cesarean section. Involution is unaffected, proceeding normally. The absence of respiratory depression and irritation such as may accompany the use of inhalation anesthesia eliminates the fear of postanesthetic pulmonary complications. Likewise the exclusion of the central nervous system from the action of the drug removes that source of excitation. Since nausea and vomiting are not anticipated under caudal anesthesia, fluids, carbohydrates and the like can be given in adequate quantities by mouth before, during and immediately subsequent to delivery. Should vomiting occur, as it does in a very small percentage of cases, the situation is easily managed, since there has been no accompanying depression of any of the respiratory reflexes. As the dural sac is not entered, the severe headaches occasionally seen in spinal puncture do not occur. The patient herself is completely relaxed, composed and reassured following her complete relief from pain. The operator is not hurried, as he is assured of approximately ninety min-

9. Rucker, M. P.: Action of Adrenalin on Pregnant Human Uterus, *South. M. J.* 18: 412 (June) 1925.

utes of anesthesia following the injection. This is of distinct advantage, particularly in teaching institutions, because a sufficient amount of time exists for instruction, demonstration and practice without the danger of jeopardizing the health of the mother or child because of prolonged anesthesia. This is hardly possible under other forms of anesthesia.

Although most of the disadvantages of the method are largely technical, there are a few obstetric situations in which caudal anesthesia is not the anesthetic of choice. The continuation of the motor impulses to the uterus may occasionally serve as an impediment to internal podalic version, although the two are by no means mutually exclusive. Patients moderately exsanguinated because of placenta previa or abruptio placentae do not tolerate the drop in vascular tension incident to the injection. The use of caudal anesthesia in patients suffering from a toxemia of pregnancy accompanied by hypertension is questioned. We have seen several toxic patients with hypertension go into so-called peripheral vasomotor collapse as the result of a precipitous fall in blood pressure following the injection. Anatomic abnormalities of the sacrococcygeal region, either acquired or congenital, may make the injection technically difficult or impossible. Certainly the injection should not be undertaken in the face of infection in this region. Necessity for immediate delivery may contraindicate its use.

The effects on the infant are nil. Nine stillbirths occurred in this series, all of which could be decisively attributed to causes other than the anesthetic. The promptness of onset of respiration is convincing evidence of the benignity of the method.

CONCLUSIONS

1. In 88.8 per cent of 800 cases of terminal caudal anesthesia in obstetrics completely successful anesthesia was obtained; 11.2 per cent were either partial or total failures. The average duration of the anesthesia (measured in 600 cases) was eighty-nine minutes.

2. Immediate anesthetic complications were few and transient; the puerperium was in no case marred by any untoward events attributable directly or indirectly to the anesthetic.

3. The effects on the infant were nil.

4. The possibilities of dural penetration, massive spinal anesthesia or broken needles are minimal. With simple precautions such accidents have never occurred in our series.

5. No indications for specific medication directed against possible toxic effects of metycaine were noted.

6. No infections of the sacral area were encountered.

7. Preliminary skin infiltration was avoided, as it was considered unnecessary and a potential factor in infection.

8. Terminal caudal anesthesia in obstetrics is of real value. Its use should be restricted to those who are willing to take time to learn the method completely. Such instruction will be rewarded by a very minimum of failures and complications. It will put an end to the unjust criticisms occasionally leveled at the method, which spring, in reality, from the operators' inadequacies rather than from any inherent fault in the procedure and will allow caudal anesthesia to take its legitimate and deserved place in the field of obstetric anesthesia.

CONTINUOUS CAUDAL ANALGESIA IN OBSTETRICS

THREE HUNDRED CASES

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Since the original publication by Hingson and Edwards¹ in September 1942 a number of papers on continuous caudal analgesia have appeared. Most of these experiences have been reported from metropolitan or large service hospitals well staffed by residents and interns. The cases reported here have been cared for by one person in a general hospital of 200 beds without any resident staff.²

The history of the development of caudal analgesia has been thoroughly covered in other publications. Briefly, it combines the original caudal analgesia of Cathelin³ (1901) with the continuous or fractional method which Lemmon⁴ applied to spinal (subarachnoid) anesthesia in 1939. By utilizing the feature of fractional injections, one is able to reach practically any level in the peridural space. Thus the peridural anesthesia of Dogliotti⁵ is achieved with the needle firmly and safely held in the sacrococcygeal ligament.

At this date no one with any knowledge of the subject doubts the possibility of relieving labor pains by means of caudal analgesia. There are, however, a number of questions which arise as to how practical its use may be in an institution of average size. My experience since Oct. 3, 1942 with this method leads me to answer the foregoing questions as follows:

1. *When is the method indicated and may it be practically and safely applied without a full time physician anesthetist?*

(a) Continuous caudal analgesia is indicated when there are strong, regular, painful uterine contractions every three to five minutes (in the primipara) with progressive dilatation of the cervix. If started much earlier than this the relief is not as greatly appreciated, since the patients lie in relatively the same position and become restless after too great a time. My experience parallels that reported by others; i. e., the best results are those over a period of seven hours or less. In multiparas, caudal analgesia may be started as soon as the pains become difficult for the patient to bear; following its administration, dilatation seems to be hastened and delivery ensues rapidly. A number of patients have been kept free from all pain for a much longer period than stated, but this time may be said to be the optimum.

(b) Consistent success with the method naturally depends on the extent of one's experience. In the early cases there are many "unexplained" failures. As pointed out by Hingson and Edwards, previous experience with single injection caudal anesthesia is highly desirable. I had no such experience but was greatly aided by having worked with spinal and particularly continuous spinal anesthesia. Recent dissection of the

1. Edwards, W. B., and Hingson, R. A.: Continuous Caudal Anesthesia in Obstetrics, *Am. J. Surg.* 57: 459, 1942.

2. Memorial Hospital, Cumberland, Md.

3. Cathelin, F.: A New Route of Spinal Injection: A Method for Epidural Injections by Way of the Sacral Canal; Application to Man, *Compt. rend. Soc. de biol.* 53: 452, 1901.

4. Lemmon, W. T., and Paschal, G. W., Jr.: Continuous Spinal Anesthesia, *Pennsylvania M. J.* 44: 975, 1941.

5. Dogliotti, A. M.: Anesthesia, translated by C. S. Seuderi, Chicago, S. B. Debaur, Publishers, 1939, p. 521.

region of the sacral canal and lower lumbar region are most helpful in thoroughly understanding the anatomy involved. Routine examination of the sacral hiatus of all patients is the easiest means of becoming familiar with this very important landmark.

The method is not one to be used occasionally for "special" patients who request it because they have read of it in some lay publication. It requires constant usage, and one must be prepared to accept failures. Obviously there is no substitute for experience, but one is greatly aided by observing the method in the hands of those already familiar with it.

All patients in this series were watched by a graduate nurse during the course of their analgesia. The physician was available at all times, all patients being in the same hospital. With the exception of the first 3 patients, the majority of the injections after completion of the induction period of analgesia were given by the nurse. All the last 80 patients in this series were under the constant observation of one nurse especially trained in the method. Aside from the increased percentage of completely satisfactory results, the relief of the burden from the physician is incalculable. I do not imply that just any individual is suited to care for these patients any more than one would choose any one person as one's regular scrub nurse in the operating room. I am quite in accord with the feeling that, ideally, the patient should be under the constant observation of the physician anesthetist; but when this is impossible, the present alternative is very practical in our hands.

2. What is the technic employed and how are the patients chosen?

(a) I have used the technic devised and improved by Hingson and Edwards⁶ for all but 5 patients. At present the 19 gage flexible caudal needle devised by them provides an instrument which is easy to insert with the minimum of trauma. Prior to its use venipuncture was common, and a few patients complained of persistent tenderness over the site of puncture. At present only a few patients complain of this tenderness, and venipuncture is definitely lessened; unquestionably some of the lessening of these annoyances is due to increased experience. I cannot but feel that a needle of sufficient size to pass a ureteral catheter is more apt to traumatize both veins and other soft tissue.

Recent use of metycaine 1.5 per cent in isotonic solution of three chlorides enables one to expect (1) a shorter induction period (especially important in cesarean sections and other surgical procedures) and (2) decrease in both the total dose and the number and frequency of injections.

The chief difficulty with either the catheter or the needle technic is the proper insertion of the needle into the caudal canal. Any aid in this respect should be welcome. I have been helped especially by the following simple points:

1. Carefully make a superficial skin wheal with 1.5 per cent metycaine directly over the sacral hiatus—it is difficult enough to locate the sacrococcygeal ligament with a needle without the patient "roaming about" from the pain of a needle insertion. Then just as carefully inject 3 to 5 cc. of solution into the lower end of the canal with a 21 gage needle. Allow this needle to remain in position until you are ready with the special caudal needle, fix the skin firmly with the

fingers of the left hand, remove the 21 gage needle, and insert the caudal needle in exactly the same point. After this pierces the sacrococcygeal ligament, depress its outer end and slide it into the canal with its bevel as near the posterior bony wall as possible. The needle should be inserted its full length so that there will be no temptation later to insert it farther and unknowingly pierce the dura. The needle should always lie directly in the midline. This will avoid all nerve trunks and minimize the chance obstruction of the needle by the lining periosteum.

2. Gently aspirate for blood or spinal fluid. If the latter is obtained, do not attempt to give the patient caudal analgesia. If blood is aspirated, change the position of the needle by rotation or slight withdrawal until no blood is obtained.

3. In the last hundred patients I have seen no harm and have been greatly aided in determining the proper placing of the needle by the following: After the precautions mentioned, 10 to 20 cc. of air is injected through the needle. If it is properly placed, the sensation is exactly that of injecting air through the needle before it is inserted into the skin; i. e., no resistance whatever. If the needle point is subcutaneous, injected air will balloon the skin more noticeably than will a like amount of fluid. Intravenous injection of air must of course be kept in mind and avoided. I have had no cause to regret this maneuver.

4. Pain or discomfort, "sciatic sign," on rapid initial injection of the anesthetic solution was present in 50 per cent of the last 80 patients. Its presence was always followed by complete analgesia and it was always absent in the "failures," but likewise was not present in almost half of the successful cases.

After the proper placing of the needle, and a ten minute wait following an 8 cc. "test dose" of 1.5 per cent metycaine, there being no signs of spinal anesthesia, 30 cc. of the anesthetic solution is injected slowly. Within five minutes skin anesthesia to pin prick will develop, beginning over the coccygeal area, and progress to the perianal region, the labia and anteriorly to the abdominal wall. Once this "saddle anesthesia" has developed there need be no doubt as to the position of the needle.

(b) *Choice of Patient.*—From my experience I suggest that the beginner avoid the patient with an obscure sacral hiatus. Nothing so tends to discredit the method and discourage the operator as "blind punching." Carefully palpate for the "notch" in all patients and choose those with a readily palpable hiatus. After increased skill and confidence develop, attempt the more difficult cases. I am able to insert the needle in the majority with the patient in the left lateral position, but I do not hesitate to use the knee-chest position if I have difficulty.

If the patient is apprehensive and refuses the method, make no attempt to convince her beyond a rational explanation. In the majority of instances the advent of more severe pains is all the "sales talk" necessary. What is necessary is absolute confidence of the physician in his ability to apply the method to the patient in question; if in doubt, it is better to conduct the labor by other means.

3. How much relief is the patient afforded and how is the course of her labor modified?

There is complete relief of all uterine pain in from ten to twenty minutes after the initial injection of 30 cc. of the anesthetic solution. This relief will continue

6. Edwards, W. B., and Hingson, R. A.: Continuous Caudal Analgesia in Obstetrics, J. A. M. A., 121: 225 (Jan. 23) 1943.

as long as skin anesthesia to pin prick is maintained over the area supplied by the 11th and 12th dorsal nerves (Cleland⁷). Continuous caudal analgesia has the particular advantage of giving complete relief at the time when the pain of uterine contraction would naturally be the greatest. This relief is afforded with no depressing effect on the baby. To see these patients change from a state of extreme discomfort to one of complete relief is most gratifying. Most of the patients doze off as soon as they are free from pain and exhibit no apprehension at being awake during the actual delivery. I have noted a definite general sedative effect in all these patients even before the onset of skin anesthesia at a level necessary to blot out their pain impulses. This has been so constant as to make me feel that it must be due to the general absorption of the drug. In the majority of patients this degree of analgesia may be maintained by injecting subsequent doses of metycaine solution every thirty to sixty minutes, depending on the patient and the level of skin anesthesia. The average dose for each fractional injection is 20 cc.; some will need less, a few may need larger doses.

The rhythmic contractions of the uterus continue without losing their force, and the first stage of labor progresses more rapidly than without anesthesia. In primiparas the second stage is definitely prolonged if allowed to go unassisted. This is due to the loss of desire to bear down with the contractions. As soon as the head is well down on the pelvic floor and in view, I routinely deliver the child with outlet forceps and episiotomy in the primipara. The anesthesia of the perineum is ideal for this procedure and the subsequent repair. The third stage is unusually smooth and on the average greatly shortened if the uterus is left entirely alone. The blood loss in this series averaged about 50 to 80 cc. (estimated).

4. *What are the dangers and how can they be avoided?*

(a) *Subarachnoid Injection.*—This is the most serious accident possible and can be avoided always by following a few simple rules: (1) Watch for spinal fluid both as drops from the inserted needle and by repeated, gentle aspiration. (2) Always inject a test dose of 8 cc. of 1.5 per cent metycaine solution and wait a full ten minutes to make certain that spinal anesthesia does not develop. This may seem unnecessary, but an experience like the one here reported is enough to drive the lesson home. If dural puncture occurs, do not attempt caudal analgesia.

CASE 1.—A secundipara aged 23, whose antepartum history was uneventful, was admitted to the hospital with irregular contractions at 10 p. m. March 13, 1943. Pains were regular and more severe at 12:30 a. m., when caudal analgesia was attempted. A 17 gage Lemmon needle was inserted through the sacral hiatus and 30 cc. of 1.5 per cent metycaine injected. The patient experienced relief from pain within five minutes. Fractional doses of 20 cc. were given throughout the night at intervals of from thirty to sixty minutes. Pain returned at 4:15 a. m. and persisted in spite of repeated doses of metycaine. By 9:45 a. m. the patient was complaining of pain in the scapular region with each injection; no relief followed these injections and there was no skin anesthesia of the anterior abdominal wall. The needle was removed at 10:20 a. m. At 10:45 the patient was placed in the knee-chest position and a 17 gage Lemmon needle was inserted into the caudal canal; no fluid dropped from the needle, and 15 cc. of metycaine 1.5 per cent was injected. Immediately the patient

became listless and cyanotic. The needle was withdrawn and the patient turned on her back; the heart action was good, with a rate of about 100, and there were no evident respiratory movements. Artificial respiration was instituted at once, both manual and with a respirator and oxygen. Breathing was easily maintained in this manner, the color improved at once and the pulse remained of good quality. Five cc. of nikethamide was given intravenously at 11:10 a. m. The patient began to attempt active breathing at 11:45 a. m. In all, artificial respiration was continued for fifty-five minutes, oxygen being given constantly. By noon she was beginning to regain consciousness; by the time consciousness had sufficiently returned to test for skin sensation (12:30 p. m.) there was complete anesthesia just to the clavicles. The only blood pressure readings observed were 100/70 at 12:25 p. m. and the same at 12:30.

Complete return of consciousness was followed in one hour by very severe, painful contractions. The patient was delivered of a husky girl at 3:32 p. m. Mother and baby had no after-effects.

This accident is avoidable and should never be allowed to occur. The test dose of 8 cc. of solution would have obviated the danger in which this patient was placed; it does not follow that the small dose (equivalent to 120 mg.) will remain as low spinal if accidentally injected subdurally, but it will not result in overwhelming "total anesthesia" as here reported. I have seen 60 mg. of procaine in 1 cc. of spinal fluid injected between the 4th and 5th lumbar vertebrae result in anesthesia to the 5th thoracic in a woman in labor. The result was not harmful but certainly could not be considered "low spinal." It follows that any initial dose, either peridural or subarachnoid, should be injected "expectantly."

The needle in this patient should not have been removed before an attempt was made to aspirate spinal fluid, thus removing as much anesthetic agent as possible. I did attempt lumbar puncture for this purpose but was unsuccessful.

In my experience, any patient who complains of pain in the scapular region during injections late in the course of continuous caudal analgesia should have the procedure discontinued; relief will not follow, and the back pain will probably increase.

(b) *Intravenous Injection.*—Large veins present in the caudal canal may be punctured by the caudal needle and if unrecognized may result in intravenous injection. This event, though much more frequent than dural puncture, is not nearly as serious.⁸ Again, after repeated aspiration for blood, "expectant" injection must be carried out to avoid untoward reactions. These range from a mild buzzing in the head to pronounced apprehension, syncope and sometimes convulsive seizures. (The latter has not occurred in this series.) I have had but one patient in whom any sign of too rapid absorption occurred except with the initial injection; this consisted only of the "buzzing" sensation mentioned. The method was discontinued.

(c) *Infection.*—All precautions must be taken to avoid infection. Caudal analgesia is never given in the presence of local skin infections. After thorough cleansing of the sacral and gluteal area with ether or carbon tetrachloride, the skin is carefully painted with any good skin antiseptic. The tip of the coccyx is palpated through a towel or sterile sponge. Gloves are worn throughout the procedure. Care is taken to

7. Cleland, J. G. P.: *Paravertebral Anaesthesia in Obstetrics: Experimental and Clinical Basis*, Surg., Gynec. & Obst. 57: 51, 1933.

8. Diddle and Hill (Pulmonary Embolism During Continuous Caudal Anesthesia, West. J. Surg. 51: 427, 1943) report a fatality in a patient managed with continuous caudal analgesia and ether. Postmortem examination showed a pulmonary embolism and infarct. The only thrombosis found after careful exploration of all veins was in a vein in the peridural space near the site of needle puncture.

avoid touching the piston of the syringe. Infections of the peridural space have been reported and have been fatal.⁹ Hingson and Edwards advise the use of 5 per cent sulfathiazole ointment about the needle at its entrance in the skin; I also apply it to the skin on a dressing after removing the needle.

CASE 2.—A primipara aged 23 was given caudal analgesia before labor pains were regular or very severe; it was persisted in for thirty-six hours. During the last six hours the patient complained of severe pain in the neck and shoulders with each injection of anesthetic solution; no relief followed these injections. In spite of all this metycaine (total dose 740 cc.) the baby was delivered in excellent condition. Following her delivery the mother developed all the signs of meningeal irritation: rigidity of the neck, photophobia and severe headache. The temperature stayed at 102 F. for eight days. Treatment consisted in general care, sulfathiazole by mouth and repeated blood transfusions. No spinal puncture was done for fear of involving the subarachnoid space. The patient recovered completely and has had no residual paralysis or changes in sensation. The total time in the hospital was twenty-six days.

This patient also developed a badly infected perineum, which certainly accounted for some of her general reaction. However, the meningeal symptoms were unquestionably due to irritation in the peridural space whether from actual infection there or not. Persistence in repeated injections followed by pain in the neck and shoulder was certainly unwise. Such pain is always a signal to stop. It is possible that the continuous drip technic may avoid such pain.

The only other infection in the group was a skin abscess following an unsuccessful attempt to remove a broken needle. The abscess cleared rapidly following incision and drainage. There were no general symptoms. The needle was removed six months later. It could have been easily removed at the time of the accident by making a short incision at that time. This patient has had no ill effects from either the abscess or the presence of the foreign body in the caudal canal.

5. *What are the causes of failure and how can they be avoided?*

Any one having considerable experience with continuous caudal analgesia could, if he would, "hold forth" at length on the reasons for his failures. A few items deserve special mention:

(a) *Failure to Place the Needle in the Caudal Canal.*
—This apparently obvious cause comes under two headings:

1. Recognition of the failure at the time and discontinuing the procedure in the given case.
2. Failure to recognize the needle's position and attempting to continue the analgesia.

This has occurred a number of times in this series and at first was classed as a partially satisfactory result. Obviously it is a complete failure, but the misinterpretation can be explained as follows and the failure and disappointment avoided. It usually occurs with a highly nervous patient who has "heard all about" the method. She is complaining loudly of her pain, and as soon as any procedure is instituted, such as making the initial skin wheal, she is greatly impressed and the "pains" disappear. One goes ahead with the introduction of the caudal needle and the preliminary injection,

and even before the first 30 cc. dose is given, the patient may say that she feels no pain of contractions. In most instances this patient would have her pains disappear as the result of the excitement of the trip to or the admission into the hospital. In other words, she is the patient whose "toothache disappears when she gets to the dentist's office" only to have it reappear later. It has been long recognized that there is a distinct psychic factor in connection with the pains of labor; this is well borne out in this respect. With this in mind, it can be realized that no relief from pain can be due to the solution injected unless there is definite and progressive skin anesthesia extending to the abdominal wall. Any relief of pain without this is purely psychic and will be short lived.

(b) *Premature Administration.*—Failure has resulted frequently when analgesia was started in a primipara before effective labor pains have begun. Until progressive dilatation and descent of the presenting part can be determined by rectal or vaginal examination, it is better to withhold caudal analgesia. As already noted, the most ideal results are in those patients under analgesia seven hours or less. The method, as has been stressed by Hingson and Edwards, is to control severe pain and not mild discomfort of early labor. If necessary, any form of sedation commonly employed may be given to carry through before the onset of "productive" pains. In this manner the patient has the benefit of caudal analgesia when most needed and is not tired by lying in one position for too long a time.¹⁰

(c) *Intravenous Injection.*—Four analgesias were discontinued because of intravenous injection and resultant bizarre reaction (dizziness and apprehension). Careful replacement of the needle after aspirating blood, waiting a short time to allow the blood to coagulate, gentle aspiration and careful injection of metycaine will overcome this complication in most instances.

(d) *Hysteria.*—Two patients became hysterical when the skin wheal was made, and the attempt was discontinued.

(e) *Anomaly.*—Three patients presented anomalies of the sacrum which prevented insertion of the needle properly. I know of no way of overcoming this cause of failure.

(f) *Broken Needle.*—Failure occurred early in the series because of a broken needle. This needle could have been and should have been immediately recovered but, as noted, was removed at a later date.

6. *Obstetric Complications.*—(a) The most frequent variation from a normal mechanism of a vertex presentation is the occurrence of a transverse or completely posterior occiput and its failure to rotate. This apparently occurs for two reasons: A completely relaxed perineal floor fails to provide resistance against which the presenting part may rotate. Secondly, owing to the lack of voluntary bearing down there is some loss

10. Six primiparas, all with preeclamptic toxemia, were given continuous caudal analgesia before the onset of labor. Labor was then induced by the rupture of their membranes. The needle was left in position, and no more metycaine was injected until the onset of painful contractions. All these women were delivered vaginally within seven hours of healthy babies. The postpartum condition of all the mothers was excellent. One patient eight and one-half months pregnant began to have irregular contractions with considerable abdominal tenderness. This was interpreted as the onset of labor. Examination revealed a vertex engaged and the cervix beginning to dilate. The membranes were ruptured under pentothal anesthesia; regular, hard labor pains ensued. Caudal anesthesia was induced and a healthy baby delivered in six hours. The abdominal tenderness persisted, and two days later exploration revealed a gangrenous dermoid cyst of the right ovary the size of a grapefruit. This was removed under spinal anesthesia, and the mother made an uneventful recovery.

9. Hingson, R. A., and Edwards, W. B.: An Analysis of the First Ten Thousand Confinements Managed with Continuous Caudal Analgesia, with a Report of the Authors' First Thousand Cases, J. A. M. A. 123: 538 (Oct. 30) 1943. Carlisle, W. T., cited by Greedy, T. G.: Some Complications of Caudal Anesthesia and Their Management, J. A. M. A. 123: 671 (Nov. 13) 1943. Hall, L. S.: Report of a Case of Septicemia Following a Sacral Anesthetic, Am. J. Obst. & Gynec. 14: 256, 1927.

of power sufficient to rotate the head. When examination shows this to be the case I feel that the best way to manage the situation is to allow the analgesia to wear off, have the patient bear down with her returning painful contractions and thus, in the majority of cases, readily rotate the head to the anterior position. Analgesia may then be resumed and the head delivered spontaneously or by outlet forceps if desired. In many cases a transverse occiput can be readily rotated manually and delivered with low forceps. In 2 cases in this series I failed to allow the head to descend and rotate sufficiently, attempted rotation with midforceps unsuccessfully and in both instances the babies died, one one-half hour after delivery, the other seven days later with unquestionable signs of cerebral hemorrhage. These deaths could easily have been avoided.

Management of the third stage is particularly important in that one must insist on the policy of "hands off" the fundus of the uterus. If the uterus is let alone the great majority of placentas will separate and be readily delivered with slight traction on the cord within five or ten minutes. In these cases the blood loss is surprisingly slight, averaging between 50 and 80 cc. Premature manipulation of the fundus, as has been pointed out by Siever and Mousel,¹¹ results in tetanic contraction of the uterus and resultant retention of the placenta. If one waits until the placenta has separated, if gentle traction is made on the cord and if the fundus of the uterus pushed away from the placenta with the thumb of the left hand, the placenta is very readily delivered.

The following case is reported not as a complication of caudal analgesia but as the only maternal death in this series:

CASE 3.—A primipara aged 28, whose antepartum course was entirely uneventful, had an average gain in weight, normal urine and blood pressure and a negative Wassermann reaction. The expected date of confinement was June 6, 1943. She was admitted to the hospital in active labor on June 11, 1943 at 12:30 p. m. Continuous caudal analgesia was started at 2:30 p. m. with pains every two minutes, the vertex engaged and the cervix dilating rapidly; complete relief from all pain occurred in fifteen minutes. Relief continued throughout labor; the patient's condition was excellent. The head was in view at 5:30 p. m., and very easy delivery was effected with outlet forceps; the baby cried spontaneously. A lateral episiotomy was repaired and an attempt was made to express the placenta at 5:45. It had not separated, so I waited ten minutes and delivered it with somewhat more than moderate pressure on the fundus—there was no extreme force exerted and no pulling on the cord. Very little bleeding followed the expression of the placenta. The mother's immediate reaction was "Is that all there is to it?" Before leaving the delivery room the patient was given ergonovine hydrochloride $\frac{1}{20}$ grain (0.2 mg.) intramuscularly following the expression of the placenta. As she was being transferred to her bed the patient was quite nauseated and vomited a moderate amount. One-half hour later I was called and told that the patient was bleeding a large amount and was almost pulseless. An ampule of posterior pituitary injection was given and within fifteen minutes the patient was receiving plasma intravenously. I saw her within half an hour, at which time the radial pulse was barely palpable, the vaginal bleeding had checked, and on abdominal palpation the uterus was quite firm and a large clot was expressed. By this time the effect of the analgesia was wearing off and the patient complained of severe abdominal pain radiating into her legs. Because of her general poor condition at this time morphine sulfate $\frac{1}{2}$ grain (11 mg.) was felt to be as large a dose as she would tolerate, and this was given. Her pain persisted and morphine sulfate $\frac{1}{2}$ grain was repeated in one

hour (7:30). By 8:30 the patient's general condition was improved; her pulse was palpable at the wrist, but she still complained of abdominal pain. (By this time she had received 1,000 cc. of blood plasma and 1,000 cc. of 5 per cent dextrose intravenously in isotonic solution of sodium chloride. At 10:30 the patient's condition had definitely improved. She was quite rational and still complained of abdominal pain, for which she received morphine sulfate $\frac{1}{2}$ grain at 11 o'clock. She died suddenly at 2:15 a. m., June 12. Permission for autopsy was granted.

The body was well developed. There was no external evidence of trauma. The head and neck showed nothing of importance. The chest was well formed. The breasts were normal in appearance. On the abdomen there were no scars or visible hernia. The uterus felt firm and contracted through the abdominal wall. Vaginal examination revealed a large dark clot present in the vaginal canal. On the extremities there were no scars. There was no edema or varicosities. An incision (Y-shaped superiorly) was made from the upper end of the sternum to the symphysis pubis. On removal of the chest plate the heart and lungs were normal in appearance; there was no free fluid in the pleural cavities and no old or recent adhesions. The heart and lungs were not removed. When the peritoneal cavity was opened there was no free fluid, either clear or bloody, present. The liver, gallbladder and ducts, stomach, spleen, duodenum and the small and large intestine showed nothing abnormal. The uterus was of normal postpartum size, and the fundus was so inverted into the uterine cavity as almost completely to hide the ovaries and inner ends of the fallopian tubes. The uterus, tubes and ovaries were removed *en masse*. On examination after removal the inner (endometrial) surface of the fundus was inverted so as just to reach the dilated external os. The uterus on removal measured 8 by 11 by 14 cm.

This patient died of an unrecognized partial inversion of the uterus resulting in severe hemorrhage and profound shock. Two factors were important in the failure to make this diagnosis. In the first place I did not think of it and secondly did not recognize the severity of the hemorrhage. Examination of the literature shows this to be a rare and extremely dangerous complication. From this experience and from the evidence in the literature it seems evident that a great deal of the danger from this complication lies in the failure to realize its presence and consequent failure to administer adequate therapy for the shock and hemorrhage involved. In other words, this patient was treated empirically for shock, but had the diagnosis been made it is quite possible that immediate and adequate transfusions of whole blood would have changed the picture.

As to the management of the third stage, if we learn nothing else it is all important to realize that the uterus in a patient under caudal analgesia will, if not manipulated, spontaneously contract quite rapidly and express the placenta in the lower uterine segment or the vagina. It then can be readily delivered by gentle traction on the cord and pushing the uterus up and away from the placenta, previously described. It is quite possible that undue manipulation of the fundus in this case was a factor in causing the inversion.

Finally, it should be stressed that although it is common for multiparous patients to have severe after pains following caudal analgesia, often necessitating repeated doses of morphine, it is extremely rare for the primipara to experience such pain.

(a) *Breech Deliveries*.—There were four breech deliveries, three in primiparas. All of the babies cried spontaneously. It is especially wise to keep the level of skin anesthesia low in this group so that they may bring into play the voluntary force of the abdominal muscles. Otherwise the temptation is great to inter-

11. Siever, J. M., and Mousel, L. H.: Continuous Caudal Anesthesia in Three Hundred Unselected Obstetric Cases, J. A. M. A. 122:424 (June 12) 1943.

fere with the breech with the possibility of fracturing a femur unnecessarily. (This occurred in the 1 multipara.)

(b) *Cesarean Section*.—Sixteen patients in the group were sectioned under continuous caudal analgesia. Striking points are the very small blood loss (there is no need for oxytocic drugs), immediate respiration in all babies with no stimulation, and smooth convalescence. (The chief complaint of the majority is "I'm hungry" on the day of or following the operation.)

One of these cesarean sections was of the classic type; the rest were transverse incision of the lower uterine segment. All babies and mothers survived with no morbidity.

How are the babies affected? They are not unless it can be said that they are stimulated. Except in those patients who cannot be reached in time to offer them any form of sedation or analgesia, there is no method known to me which can so insure a lusty cry and a spontaneously breathing baby. All babies delivered in this series (there were three sets of twins) are alive and well with the following exceptions: macerated fetus, 2 (prior to admission); premature (six and one-half months with prolapsed cord), 1; stillborn (second of premature twins, seven and one-half months), 1; neonatal (thirty minutes and seven days), 2 (both difficult forceps applied too early).

7. Are there any unpleasant side-effects or sequelae?

Nausea does occur in a number of these patients. That this is caused in part by the anesthetic agent seems certain, since it is sometimes seen when the method is used for surgical cases (i. e., not in labor). It is my clinical impression that this occurs more often when an attempt is made to "push" the drug in attempting to raise the level of anesthesia too rapidly. It occasionally happens with the first injection. Its occurrence can be minimized by making the injections slowly and "expectantly."

The buzzing in the head and apprehension, mentioned previously, is more likely to occur when the needle is not properly placed. It would seem that, when its end is lodged in the areolar tissue present in the canal, rapid absorption, similar to intravenous injection, occurs with resulting untoward symptoms in a few cases. I have not seen this occur when injected air passed freely through the needle. Volpitto and his associates¹² report a fatality probably due to circulatory collapse. It is possible that a brief syncopal attack from too rapid absorption in a robust individual might result disastrously in one with an already damaged circulatory system. As I have mentioned before, any unusual symptoms in this series have occurred with the first 30 cc. injected with one exception (mild buzzing late in the course of labor). I am therefore impressed with the need for careful observation of the patient during the induction period.

Headache during the initial injection occurred in 1 patient in this series and was transient. (I have seen it in 1 other patient, treated for sciatic neuritis; here too it ceased with the injection.)

Afterpains.—Since these patients have been entirely free from pain during their labor, many of them complain of the severity of their afterpains. All multiparas are given morphine sulfate $\frac{1}{6}$ to $\frac{1}{4}$ grain (11 to 16 mg.) on return to their room. A few of the primiparas will also require this relief.

There were no important sequelae; 3 patients complained of residual numbness as follows:

1. Anesthesia over the coccygeal area lasting three weeks; normal sensation thereafter.
2. Anesthesia of formerly painful hemorrhoids for nine days post partum; following this they "hurt satisfactorily!"
3. Anesthesia of the left labial fold, discovered six weeks post partum when her husband returned from an army camp on an overnight pass. Normal sensation has developed since then.

It is only fair to note that the general public knows of several patients "who are paralyzed" in this community. When each is traced, the patient reports that she is unaware of the condition. One patient in particular was delivered by another physician by cesarean section under ether anesthesia!

RESULTS

The number of patients delivered was 300, the number of babies delivered, 303, the number of babies who died within seven days (including stillborn) 6, maternal deaths 1, cesarean sections (all satisfactory) 16, completely satisfactory analgesia 222, partially satisfactory analgesia 36 and failures 42.

SUMMARY

1. In the management of 300 obstetric cases with continuous caudal analgesia both the obstetric and anesthetic procedure were carried out by 1 person with no previous experience with caudal anesthesia.

2. With but 3 exceptions all the patients were watched after the "induction period" by a graduate nurse, the physician being constantly on call. The necessary subsequent doses of metycaine were given by the nurse. There were no accidents or complications due to the physician's absence. If the physician cannot be constantly present, it is highly desirable that all the patients be attended by one nurse especially trained and experienced with the method.

3. The method used is that developed by Hingson and Edwards using 1.5 per cent metycaine in saline solution or preferably isotonic solution of three chlorides. Care should be taken in selecting the patients for this method, especially early in one's experience.

4. The optimum duration of caudal analgesia in this series was seven hours or less. For reasons which I do not understand I was unable consistently to maintain complete relief in those patients requiring analgesia for a longer period. With these exceptions all patients were completely relieved if the caudal needle was so placed that the anesthetic solution has free and continued access to the peridural space.

The average duration of analgesia for primiparas was six hours twenty minutes and for multiparas three hours fifteen minutes.

5. The possible complications of the method are dural puncture, intravenous injection and infection.

6. Obstetric management is facilitated. The second stage is lengthened unless terminated by instrumental delivery in the majority of primiparas. The third stage is usually shortened and the blood loss diminished.

7. One maternal death occurred following inversion of the uterus.

8. The babies are remarkably unaffected.

9. Causes of failures were practically all due to faulty technic or use of the method too early in labor.

10. Unpleasant "side-effects" include nausea. There were no sequelae of any importance.

122 South Centre Street.

12. Volpitto, P. P.; Woodbury, R. A.; Abreu, B. E., and Torpin, R.: Continuous Caudal Analgesia in Normal and Complicated Labor, *South. M. J.* 37: 83, 1944.

ACUTE INFECTIOUS LYMPHOCYTOSIS: A SPECIFIC INFECTION

REPORT OF FOUR CASES SHOWING ITS
COMMUNICABILITY

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In 1941 I reported the cases of 2 young children who, with a minimum of clinical signs and symptoms, showed an unexpected and exaggerated lymphocytosis, with maximum leukocyte counts of 44,300 and 98,000 per cubic millimeter, respectively.¹ These cases were described in conjunction with those of a larger group of children with more moderate and prolonged lymphocytic reactions, which are more frequently encountered in pediatric practice. For these two types of blood conditions the terms acute and chronic infectious lymphocytosis, respectively, were suggested. The two forms of infectious lymphocytosis were differentiated clinically, hematologically and serologically from infectious mononucleosis, acute lymphatic leukemia and miscellaneous infections associated with lymphocytosis.

During March 1943, within a period of three weeks, 4 cases of acute infectious lymphocytosis were again observed at the New York Hospital. The fact that 3 of the patients were members of one family and 1 a hospital contact indicated that this disease possessed infectious and communicable aspects. Investigation of the patients in this group provided an opportunity for more extensive clinical and hematologic observations and also for pathologic examination of a lymph node in 2 of the children. Since the original report several cases of the same condition have also been observed in various hospitals in New York City.

It is my purpose in this paper to discuss in greater detail than was possible in the original publication the various aspects of acute infectious lymphocytosis. This added experience serves also to present confirmatory evidence for the view that this disease constitutes a specific entity and that with the aid of the criteria to be described it can be separated from other blood disorders.

REPORT OF CASES

History.—M. S., a girl 5 years of age, was admitted to the surgical service of the New York Hospital on March 3, 1943 with a temperature of 103 F. and the complaint of fever, vomiting and abdominal pain of twelve hours' duration. The child was acutely ill. The tonsils were hypertrophied and deeply injected, the heart and lungs were normal, and the abdomen was slightly resistant and tender over the right lower quadrant. There were a few shotty, cervical and inguinal nodes but no generalized lymphadenopathy and no splenomegaly. The first blood count showed 45,000 white cells per cubic millimeter, with 48 per cent lymphocytes and 45 per cent polymorphonuclear neutrophils. Within a few hours the white cell count rose to 55,400 per cubic millimeter, with 72 per cent lymphocytes. During the course of the day the temperature dropped, the abdominal pain subsided and the child was transferred to the pediatric service. On March 5 the temperature rose to 100 F., and a herpetic eruption appeared on the right side of the face. The child became afebrile and remained asymptomatic until her discharge from the hospital. As may be observed in table 1, leukocytosis and lymphocytosis persisted until March 30. Blood taken on March 4 was sterile on culture. Tests on March 8, 16 and 19, 1943 showed a heterophile antibody titer within the normal range. Cultures of

material from the nose and throat on March 9, 1943 revealed nonhemolytic *Staphylococcus aureus* and nonhemolytic *Streptococcus gamma*. Lumbar puncture on March 9 showed a clear spinal fluid under normal pressure, with 2 lymphocytes and a negative Pandy reaction. The tuberculin test was negative. Sternal aspiration on March 5, when the white cell count was 40,500 per cubic millimeter with 74 per cent lymphocytes, revealed 152,000 nucleated cells per cubic millimeter. The differential count was as follows: neutrophilic band forms, 5 per cent; segmented forms, 3 per cent; lymphocytes, 43 per cent; eosinophils, 2 per cent; neutrophilic myelocytes, 21 per cent; eosinophilic myelocytes, 3 per cent; metamyelocytes, 11 per cent, and nucleated red cells, 12 per cent. Megakaryocytes were not observed in the counting chamber, but they were present in the smears and they were mature, showing platelet formation. The hemoglobin content and red cell count were normal throughout the course of this illness. The outstanding feature of the sternal aspiration was an elevation of lymphocytes (43 per cent, as compared with a normal of 15 to 25 per cent).

Biopsy.—An inguinal lymph node was removed on March 16. It was examined by Dr. N. C. Foot, who reported as follows: "Sections from this lymph node show a very unusual picture, inasmuch as all of the lymph sinuses between follicles are almost completely occluded by masses of proliferating reticulo-endothelial cells. The germinal centers show hyaline degeneration of a varying degree. This is apparently a product of the action of some toxic agent. Practically all of the lymph follicles in the section show this change.

"Giemsa-stained sections show precisely the same changes noted in the Masson-stained sample. In addition to the proliferation of reticulum cells and degeneration of lymph follicles (which in these sections do not seem as marked as in the others), one notes a rather large number of eosinophils and occasional large atypical cells in the lymph follicles. It is understood that there is no specific picture for infectious lymphocytosis. That presented by this specimen is a combination of chronic lymphadenosis and acute lymphadenitis" (figs. 5 and 6).

MEMBERS OF THE FAMILY

About March 15, 1943 infections of the upper respiratory tract occurred in members of the family. For this reason the children were brought to the outpatient department of the New York Hospital for examination. The father, B. S., aged 33, had been admitted to the New York Hospital on March 14, 1943 and was discharged on March 20 with a diagnosis of pyelonephritis. During this admission, Widal and Brucella agglutinations were negative. A blood count on March 15, while he was in the hospital, is recorded in table 1.

The mother, M. S., and a brother, A. S., aged 10 years, had mild colds at this time, but their blood showed no abnormalities. Physical examination of A. S. showed entirely normal conditions. The 2 remaining children showed hematologic changes, and their clinical histories will be summarized. The blood counts of all members of the family are recorded in table 1.

R. S., a brother 16 months of age, had a nasopharyngitis and cough without fever for two weeks. On March 15 physical examination revealed a rhinopharyngitis. There was no enlargement of lymph nodes, the edge of the spleen was barely palpable, and the liver was felt 3 fingerbreadths below the costal margin. There was no fever. The blood showed 10,400 white cells per cubic millimeter, with 90 per cent lymphocytes. On March 24, when the white cell count had risen to 55,000 per cubic millimeter, the throat was still injected, the liver was felt 2 fingerbreadths below the costal margin and the tip of the spleen was just palpable. On subsequent examinations the spleen was not felt, and at no time was lymphadenopathy noted. The white cell count and the percentage of lymphocytes remained elevated until April 8, a period of approximately three weeks. Heterophile agglutinin reactions on April 1 and April 8 were negative. Cultures of material from the nose and throat on April 6 showed nonhemolytic *Staph. aureus*, nonhemolytic *Str. gamma*, pneumococcus type 19 and *Haemophilus influenzae*.

E. S., a sister 3¼ years of age, had a cold and sore throat for two weeks before the visit to the outpatient department

From the Department of Pediatrics, Cornell University Medical College, and the New York Hospital.
1. Smith, C. H.: Infectious Lymphocytosis, *Am. J. Dis. Child.* 62: 231 (Aug.) 1941.

on March 15. On examination the child had a normal temperature, and the physical examination revealed no abnormality. The liver and spleen were not palpable. The lymph nodes were not enlarged. On that day her white blood cells numbered 15,000 per cubic millimeter, with 87 per cent lymphocytes, and on March 30 the count was 18,600 per cubic millimeter, with 70 per cent lymphocytes. The total white cell count and the percentage of lymphocytes remained elevated until April 6, a period of approximately three weeks. The heterophile antibody reactions on April 1 and April 8 were negative. Cultures of materials from the nose and throat on April 6 showed the same organisms as those of R. S.

On March 7 M. S., the patient in whom the leukocytosis was originally detected, was transferred to a room in the

lungs were normal, and the spleen and liver were not palpable. The urine showed albumin (4 plus), numerous red blood cells and occasional white blood cells. Because of anemia, a transfusion of 200 cc. of blood was given on March 1, and 240 cc. of blood was given again on March 3. On March 22, the day before the suprapubic cystotomy, a routine blood count showed 48,000 white blood cells per cubic millimeter, with 68 per cent lymphocytes. In view of the child's normal appearance and normal temperature, this blood picture was so surprising that the count was repeated on the same day and showed 59,000 white blood cells per cubic millimeter. There were no clinical changes to account for this reaction. The child remained afebrile, and there was no sore throat nor enlargement of the lymph nodes or spleen. Several blood counts were made before

TABLE 1.—Blood Studies in the Family of M. S. and in the Hospital Contact K. C.

Name	Age	Date 1943	Hemo- globin Content, Gm. per 100 Cc.	Red Cells, Millions per Cu. Mm.	Packed Red Cells, Volume per Cent	White Cells per Cu. Mm.	Neutrophils			Lympho- cytes, Per- centage	Mono- cytes, Per- centage	Eosino- phils, Per- centage	Baso- phils, Per- centage
							Per- centage	Band	Seg- mented				
M. S.	4 yr.	3/3	...	...	...	45,000	45	...	...	48	2	5	...
		3/3	12.5	4.500	...	55,400	24	10	14	72	2	2	...
		3/5	...	...	...	40,500	21	3	18	74	1	3	...
		3/6	12.5	4.204	40	37,900	14	2	12	80	1	5	1
		3/7	...	...	...	33,100*	13	5	8	81	1	4	...
		3/10	...	...	...	42,100	6	1	5	89	3	2	...
		3/14	...	...	...	35,500	11	1	10	84	2	4	...
		3/22	12.0	4.061	37	15,000	16	2	14	78	2	5	...
		3/30	11.5	3.720	36	9,000	36	2	34	60	1	3	...
		4/6	...	...	...	10,700	51	2	49	42	3	4	...
		4/13	...	...	...	9,700	52	9	43	44	3	1	...
R. S. (brother).....	16 mo.	3/15	...	...	...	10,400	7	...	...	90	...	3	...
		3/24	...	...	...	55,000	9	2	7	88	1	2	...
		3/30	11.0	4.150	39	23,700	12	1	11	85	1	2	...
		4/1	...	...	...	17,000	22	2	20	75	1	2	...
		4/6	...	...	...	9,900	45	3	42	49	2	4	...
		4/13	...	...	...	10,400	48	5	43	44	6	1	1
E. S. (sister).....	6½ yr.	7/24/42	...	...	...	8,000	74	...	...	24	2	...	...
		3/15/43	...	...	...	15,000	12	...	...	87	...	1	...
		3/30	12.5	4.160	40	18,600	26	3	23	70	1	3	...
		4/1	...	...	...	17,400	26	1	25	67	2	3	...
		4/6	...	...	...	5,500	45	1	44	52	1	2	...
		4/6	...	...	...	6,500	52	14	38	43	3	2	...
		4/13	...	...	...	8,200	50	1	49	45	3	2	...
A. S. (brother).....	10 yr.	3/15	...	...	...	8,000	...	...	...	...	...	...	...
		4/1	13.0	...	40	5,700	46	1	45	47	7	...	...
		4/6	...	...	...	6,500	44	1	43	52	3	1	...
Mrs. S. (mother)....	.....	3/30	13.0	...	40	5,400	66	1	65	32	1	1	...
Mr. S. (father).....	.....	3/15	15.0	5.100	...	9,500	65	4	81	14	1	...	...
		3/30	14.0	...	43	5,300	64	3	61	25	7	1	...
K. C. (hospital con- tact)	8½ yr.	2/27	9.0	3.300	...	11,000	66	6	60	30	3	4	...
		3/4	12.0	4.100	...	10,200	...	...	...	...	...	...	...
		3/13	12.6	4.100	...	8,100	...	...	...	...	...	...	...
		3/22	...	...	...	48,000	...	...	...	68	...	...	...
		3/22	...	...	...	50,000	...	...	...	76	...	...	...
		3/23	11.0	3.690	34	62,300*	14	2	12	76	3	6	...
		3/24	...	...	...	58,200	20	2	15	73	2	5	...
		Operation 3/24	...	...	...	68,500	38	2	35	54	8	...	...
		3/25	...	...	...	60,300*	40	3	37	52	3	4	...
		3/26	...	...	...	37,200	34	4	30	59	2	5	...
		3/28	...	...	...	36,000*	32	2	30	60	3	4	...
		3/31	...	...	36	31,600	26	2	24	67	2	5	...
		4/3	11.5	3.960	...	20,500	32	3	29	57	2	9	...
		4/11	...	...	37	11,500	33	3	30	61	1	5	...
		4/17	11.5	4.040	...	8,400	68	5	62	31	1	1	...
		4/25	...	...	...	7,200	45	6	59	51	2	2	...

* One myelocyte was noted in each of these differential counts.

children's pavilion with 4 other children. Since she was ambulatory, she was in daily contact with these children. One of her playmates was K. C.

K. C., a 9 year old girl, was admitted to the hospital on Feb. 27, 1943 for a suprapubic cystotomy prior to a plastic urologic operation. She had had two previous admissions to the New York Hospital. She was born with a spina bifida and a meningocele, and at 4 weeks of age the latter was removed. Rectal and vesical incontinence were present early in her course, and eventually a vesicovaginal fistula developed. Since her previous discharge from the hospital after plication of the neck of the bladder, vaginal bleeding had occurred periodically. Physical examination on admission showed that she was well developed, and except for pallor she did not appear ill. The tonsils were hypertrophied and not injected. The cervical nodes were small, and there was no other adenopathy. The head, eyes, ears and nose were normal. The heart and

the leukocytosis was observed, and results of these and subsequent ones are recorded in table 1.

On March 23, when the peripheral blood showed 62,300 white cells per cubic millimeter, with 76 per cent lymphocytes, a sternal aspiration was performed. Examination of the marrow revealed a total count of 128,000 nucleated cells per cubic millimeter, with 22 megakaryocytes. The differential count showed the following distribution: neutrophilic band forms, 6 per cent; segmented forms, 12 per cent; lymphocytes, 42 per cent; eosinophils, 3 per cent; neutrophilic myelocytes, 14 per cent; eosinophilic myelocytes, 1 per cent; metamyelocytes, 8 per cent; myeloblasts, 1 per cent, and nucleated red cells, 13 per cent. Normal platelets were given off by the megakaryocytes.

Despite the abnormal blood reaction, the suprapubic cystotomy was performed on March 14. Except for a slight increase in polymorphonuclear neutrophils and a decrease in

lymphocytes immediately following the operation, the trend of subsequent total and differential white cell counts corresponded to that of the other affected children. Heterophile antibody tests on March 24 and on March 31 elicited negative reactions. The three remaining playmates of M. S. showed normal blood counts.

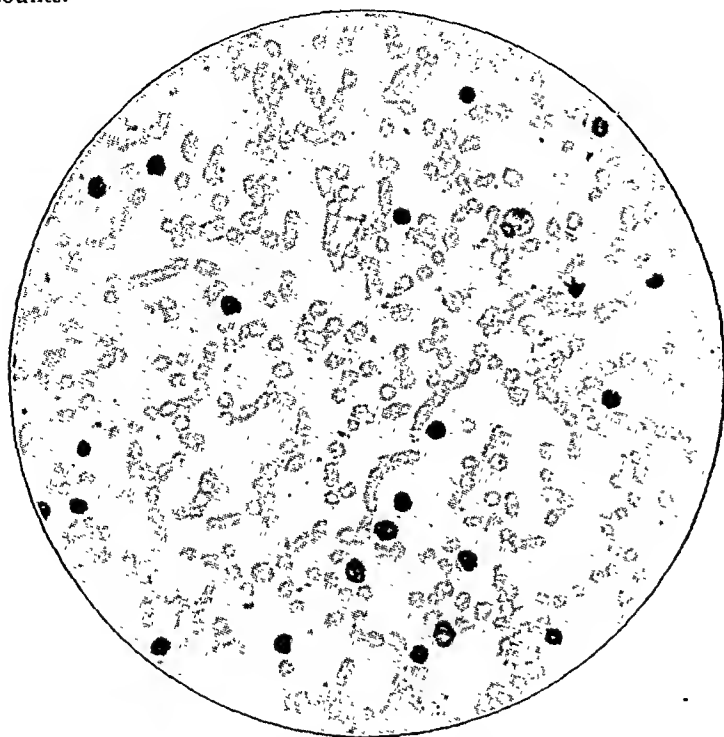


Fig. 1 (patient M. S.).—Blood smear $\times 400$. Figures 1, 2, 3 and 4 are photomicrographs of typical blood smears in acute infectious lymphocytosis, demonstrating the hyperleukocytosis and the increase in the small, mature lymphocytes.

Biopsy.—A cervical lymph node was removed on March 31. Examination by Dr. N. C. Foot showed the following: "Microscopically the picture in this lymph node is essentially the same as that seen in the previous one submitted with a diagnosis of infectious lymphocytosis. There is a very marked proliferation of the reticuloendothelium of the sinuses, which are almost completely blocked by masses of these cells. The lymph follicles are very inconspicuous, practically obliterated, and show no germinal centers. There is a good deal of migration of the cells in the follicles, and numerous polymorphonuclears are seen, sometimes grouped into masses. Here and there mitotic figures are noted in the scanty lymphoblasts. The picture is so strikingly similar to that noted in the previous case that the lesion is immediately recognizable as the same, and it is probable that one has here a heretofore unrecognized pathologic lesion of the lymph nodes.

"Giemsa-stained sections show the same features brought out by the Masson stain. Here and there one notes large dark cells somewhat resembling lymphoblasts but somewhat intermediate in appearance between these and monocytes. They are not unlike the cells noted in infectious mononucleosis. They are not, however, at all numerous. Otherwise the description does not differ from that of the Masson-stained sections" (figs. 7, 8 and 9).

CLINICAL FEATURES

In acute infectious lymphocytosis the lymph nodes and spleen are not enlarged and the clinical manifestations are usually mild or absent, or if severe they are of short duration. One of the patients who was the subject of report in the previous communication (J. G.) had been admitted to the hospital because of pain in back of the neck and head. There was no fever, and the symptoms subsided rapidly. The other patient had no complaints.

In the group of cases comprising the present report, the first child, M. S., was admitted to the hospital with an elevated temperature, vomiting and abdominal pain. The tonsils were deeply injected, and the abdomen was

slightly resistant and tender over the right lower quadrant. These signs and symptoms subsided within forty-eight hours. In the affected sister, E. S., and the brother, R. S., the symptoms were those of a mild infection of the upper respiratory tract. K. C., the contact, appeared well throughout the period of the blood reaction.

The group of 16 cases which Reyersbach and Lenert² reported from one institution with a diagnosis of infectious mononucleosis can now more appropriately be classified as instances of acute infectious lymphocytosis. These children were asymptomatic and showed no abnormalities on physical examination. Occasionally the symptoms at the onset may be severe, as in the case recently studied by Duncan.³ His patient, 4 years and 11 months of age, had a fever which reached a peak of 103 F. on the fourth hospital day. Generalized abdominal pain, tenderness and rigidity, headache and irritability were conspicuous features. The highest count in this case was 110,000 white blood cells per cubic millimeter, with 92 per cent normal small lymphocytes. In 2 cases (Patricia G. and Anita G.) reported by Thelander and Shaw⁴ of infectious mononucleosis occurring in young children, the signs at the onset were those of encephalitis and of meningitis respectively. The maximal white cell counts were respectively 50,500 cells per cubic millimeter with 81 per cent lymphocytes and 45,700 cells with 81 per cent lymphocytes. The blood picture in each case resembled that of acute infectious lymphocytosis, since here too the spleen and lymph nodes were not enlarged and the heterophile agglutination titer was low. In 4 other typical cases observed recently in children in other institutions in New York City the complaints included cough, fever, nausea, vomiting and abdominal pain. In none of the

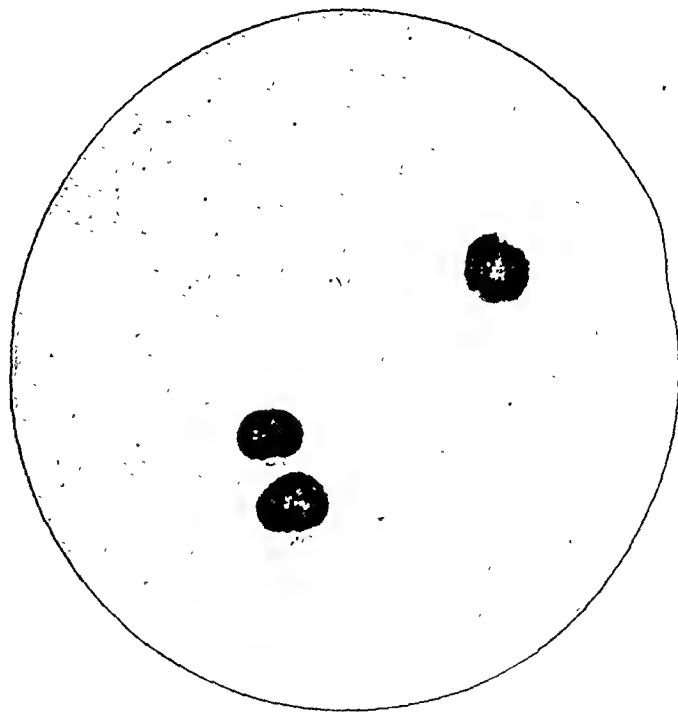


Fig. 2 (patient M. S.).—Blood smear $\times 1,000$.

cases was there lymphadenopathy or splenomegaly, and in all instances the heterophile agglutinin reaction was negative. The maximum white cell counts in these cases

2. Reyersbach, G., and Lenert, T. F.: Infectious Mononucleosis Without Clinical Signs or Symptoms, *Am. J. Dis. Child.* **61**: 234 (Feb.) 1941.
3. Duncan, P. E.: Acute Infectious Lymphocytosis, *Am. J. Dis. Child.* **66**: 267 (Sept.) 1943.
4. Thelander, H. E., and Shaw, E. B.: Infectious Mononucleosis with Special Reference to Cerebral Complications, *Am. J. Dis. Child.* **61**: 1131 (June) 1941.

ranged from 34,000 cells per cubic millimeter with 65 per cent lymphocytes to 49,200 cells with 88 per cent lymphocytes. A characteristic feature in all cases, including those of the present series, is that while the symptoms and physical signs are of short duration the

to 54 per cent. The lower percentage of lymphocytes on this and on the days following may be attributed to the reaction arising from operative procedures. It is possible that the total white cell counts of E. S. may have reached higher levels than those recorded but were overlooked because of infrequent observations.

The important features of the blood picture in all cases consisted, therefore, in the hyperleukocytosis, the preponderance of lymphocytes and the normal cytologic appearance of the latter. The lymphocytes were mainly of the small variety and were of uniform size and normal structure (figs. 1, 2, 3 and 4). Occasionally slightly larger or intermediate types were encountered, but these were also mature cells. The cytoplasm was usually scant, and in an occasional cell it was moderately basophilic. The duration of the abnormal leukocytic reaction in the 4 cases of the present series was three to four weeks.

Bone Marrow.—The myeloid elements and nucleated red cells were normal in number, and the outstanding feature in M. S. and in K. C. was the increased number of normal small lymphocytes. The value for each was 43 and 42 per cent respectively, as compared with a normal lymphocytic percentage of 15 to 25 per cent.

Heterophile Agglutination (Paul-Bunnell) Test.—The serum of each of the 4 patients was tested at least twice for heterophile antibody, and the reaction was uniformly negative.

Serologic and Bacteriologic Data.—Few laboratory studies have been carried out to determine the etiologic agent responsible for this disease. Reyersbach and Lenert² injected unfiltered throat washings and plasma from 2 of their patients into rabbits. The animals remained well, no change occurred in the total leuko-

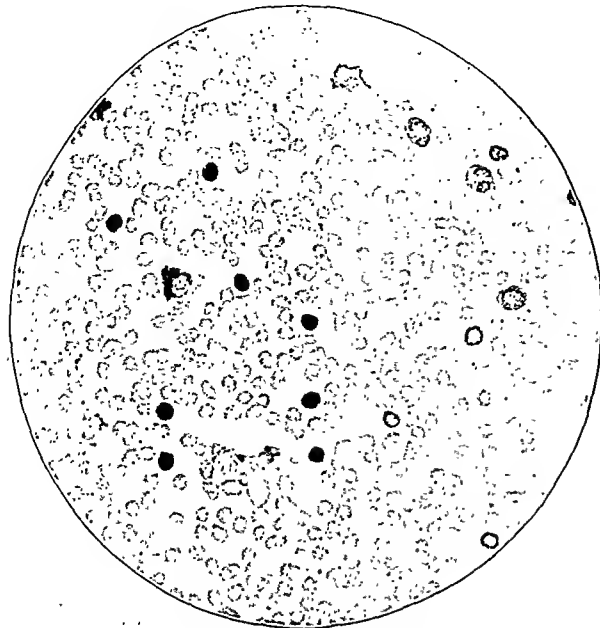


Fig. 3 (patient K. C.).—Blood smear $\times 400$.

hyperleukocytosis continues for a period of approximately three to five weeks.

In 3 of the cases of the present report there was a history of recent infection of the upper respiratory tract, and in 2 the throat was deeply injected at the time of the initial examination. In cases of acute infectious lymphocytosis, abdominal pain may represent a striking symptom, with the result that the patient is frequently admitted to the surgical service. The abdominal pain probably arises from enlarged mesenteric lymph nodes in a manner similar to that known to occur in association with infections of the throat. In 2 of the cases also herpetic lesions appeared on the face. The outcome in all the cases thus far studied has been uniformly favorable.

LABORATORY EXAMINATIONS

Blood.—In the 4 cases the outstanding feature was the blood picture, which was characterized by an unexpected hyperleukocytosis with a preponderance of lymphocytes, all of the normal small and intermediate types (figs. 1, 2, 3 and 4). Since the blood picture has been fully described in the previous communication,¹ it will only be reviewed briefly here. The red blood cells, hemoglobin content and platelet values are normal if the disease is uncomplicated. In K. C. the anemia was probably due to the local loss of blood associated with the urologic condition.

The maximum leukocyte counts for M. S. and for her brother R. S. were respectively 55,400 and 55,000 white cells per cubic millimeter, with 72 and 88 per cent lymphocytes. In K. C. the maximal value before operation was 62,300 white cells per cubic millimeter, with 76 per cent lymphocytes. Immediately after the suprapubic cystotomy the white cell count rose to 68,000 cells per cubic millimeter but the lymphocytes dropped

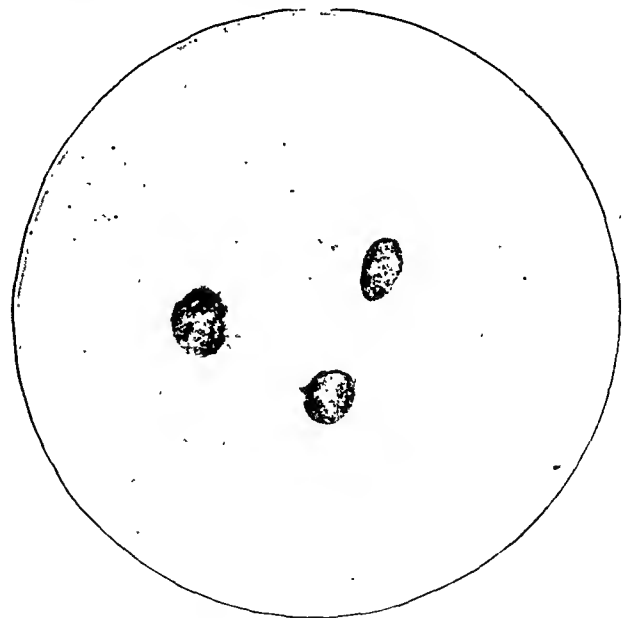


Fig. 4 (patient K. C.).—Blood smear $\times 1,000$.

cyte or differential counts, and no rise in agglutinins for sheep red cells was noted.

Serologic studies on the 4 patients in the present group were carried out by Drs. Thomas and Horsfall of the Hospital of the Rockefeller Institute. Complement fixation studies were negative for lymphocytic choriomeningitis. The serums were also tested for antibodies against influenza A and B virus by the Hirst

technic and gave negative results. The fresh serum of M. S. obtained on March 6 was inoculated on that day into 6 mice and 2 guinea pigs by the intracerebral and intraperitoneal routes. These animals have remained entirely well.



Fig. 5 (patient M. S.).—Section of lymph node ($\times 300$) showing reticuloendothelial hyperplasia and partial obliteration of some of the lymph follicles. This and figures 6, 7 and 8 are photomicrographs of sections from lymph nodes in cases of acute infectious lymphocytosis showing similar microscopic pictures. Sections demonstrate definite proliferation of reticuloendothelium of sinuses and varying degrees of degeneration and obliteration of lymph follicles.

Bacteriologic studies of the nose and throat in the 4 cases revealed staphylococci, streptococci, pneumococci, influenza bacilli and diphtheroid organisms.

Pathology.—Lymph nodes obtained for biopsy from 2 of the patients during the stage of active blood reactions showed remarkably similar microscopic pictures. The outstanding feature in both was the striking proliferation of the reticuloendothelium of the sinuses, which were almost completely blocked by masses of these cells (figs. 5, 6, 7, 8 and 9). In addition, the lymph follicles showed a number of changes. Some of the germinal centers showed a hyaline degeneration of varying degree. Many of the follicles were notably inconspicuous, and in some sections they were practically obliterated. Common to both lymph nodes, therefore, were the reticuloendothelial hyperplasia and degeneration of lymph follicles.

INCUBATION PERIOD

Because of infrequent white cell counts in the early stages of the blood reaction, it was difficult to state an actual period of incubation. The cases of infectious lymphocytosis in the family of M. S. may have all originated from a common source, since for a short period the blood counts were elevated in the 3 children simultaneously. Hyperleukocytosis, however, occurred in R. S. when the blood count in M. S. was almost normal. Possibly R. S. was infected by his sister at

home, since the last contact between them was on March 3, when the latter was admitted to the hospital. On March 15 the total white cell count in R. S. was only 10,400 cells per cubic millimeter, but the lymphocytes numbered 90 per cent. On March 24 the white cell count rose to 55,000, with 88 per cent lymphocytes. The length of the incubation period for R. S. may

TABLE 2.—Representative Blood Counts Showing the Spread of Acute Infectious Lymphocytosis in the Family of M. S. and in the Hospital Patient K. C.

Name	Date 1943	White Cells per Cu. Mm.	Lymphocytes, Per-centage	Name	Date 1943	White Cells per Cu. Mm.	Lymphocytes, Per-centage
M. S.	3/ 3	55,400	72	K. C.	2/27	11,000	30
	3/ 5	40,500	74		3/ 4	10,200	
	3/ 7	39,100	81				
	(Transferred to room with K. C. on 3/7/43)						
	3/14	35,500	84		3/13	8,100	
R. S.	3/15	10,400	90		3/22	59,000	76
(brother)	3/24	55,000	88		3/23	62,300	76
	3/30	23,700	85		3/24	58,200	73
					3/31	36,000	69
E. S.	3/15	15,000	87				
(sister)	3/30	18,600	70				
	4/ 1	17,400	67				

therefore have extended somewhere between twelve and twenty-one days.

For K. C. the incubation period could be designated with greater precision (table 2). M. S. entered the same room with this patient on March 7, and these chil-

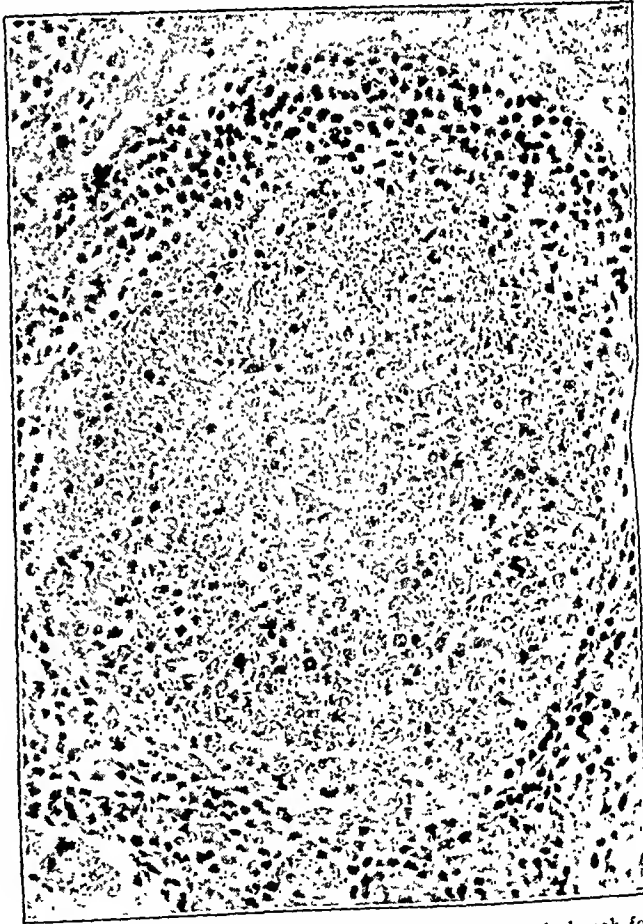


Fig. 6 (patient M. S.).—Higher magnification of a single lymph follicle in figure 5 ($\times 700$) showing hyaline degeneration of the germinal center.

dren were in intimate contact until March 24. The first abnormal blood reaction for K. C. was noted on March 22, fifteen days after the first contact. The length of the incubation period may have been shorter than this, since no blood counts were made between March 13 and March 22.

DIFFERENTIAL DIAGNOSIS

In the diagnosis of infectious lymphocytosis the conditions most frequently considered are infectious mononucleosis, acute lymphatic leukemia and a leukemoid reaction of the lymphoid type.

Infectious Mononucleosis.—There are many clinical and hematologic points of differentiation between the two diseases. These have been summarized in table 3. In infectious mononucleosis there is usually a prodromal period of malaise followed by fever, enlargement and tenderness of the lymph nodes, sore throat and splenomegaly. The febrile phase lasts one to three weeks and then subsides, although enlargement of the glands and of the spleen persists. Acute infectious lymphocytosis, on the other hand, may run its course without

with a preponderance of small lymphocytes possessing a normal cytologic appearance. In infectious mononucleosis the most important feature of the hematologic differentiation is the presence of atypical mononuclear elements. These cells may be so abnormal in structure,



Fig. 7 (patient K. C.).—A low power view of a lymph node to illustrate evident reticuloendothelial hyperplasia and obliteration of lymph follicles. Reduced from a photomicrograph with a magnification of 60 diameters.

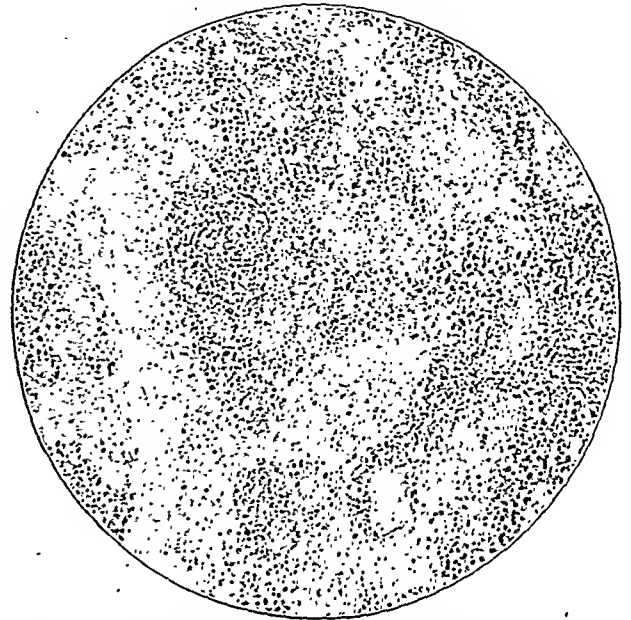


Fig. 8. (patient K. C.).—Higher power view of section of lymph node shown in figure 7 ($\times 400$) demonstrating in greater detail pronounced proliferation of reticuloendothelium.



Fig. 9 (patient K. C.).—Section of lymph node ($\times 600$) showing reticuloendothelial hyperplasia in greater detail.

significant clinical signs or symptoms, or there may be sore throat, fever and severe constitutional symptoms which last several days only. The lymph nodes and spleen are not enlarged. The heterophile antibody reaction is positive in infectious mononucleosis and consistently negative in acute infectious lymphocytosis.

The blood picture constitutes the most important differential feature between the two diseases. In infectious mononucleosis the total white cell count usually does not exceed 20,000 per cubic millimeter, whereas acute infectious lymphocytosis is characterized by a hyperleukocytosis, with maximal levels frequently exceeding 50,000 cells per cubic millimeter. It may be that the cases of infectious mononucleosis reported previously with extreme leukocytosis belonged to the category of acute infectious lymphocytosis. A more important feature of the hematologic differentiation rests in the morphologic appearance of the lymphocytes in the two conditions. As already stated, in acute infectious lymphocytosis the hyperleukocytosis is associated

size and staining reaction that classification is difficult. They have been identified, however, as lymphocytes by the supravital technic and have been fully described in the previous communication.¹ The most character-

istic cells have ragged and irregular edges; their cytoplasm is usually abundant, is frequently vacuolated and stains darker blue with the Wright stain than do normal lymphocytes. The combination of fine vacuolation and basophilia gives the cytoplasm a foamy appearance, which is a striking and distinctive feature of the cells in infectious mononucleosis. In general, the variability of the atypical lymphocytes in infectious mononucleosis contrasts sharply with the uniform size and normal structure of the cells in acute infectious lymphocytosis.

There is no uniformity of opinion as to the appearance of the sternal marrow in infectious mononucleosis. Some investigators have reported atypical mononuclear elements,⁵ whereas others have found no abnormalities.⁶ In 3 children with infectious mononucleosis examined at this hospital, bone marrow puncture showed the presence of an occasional atypical lymphocyte, and in 2 the percentages of lymphocytes were at the upper level of normal. In 5 cases of acute infectious lympho-

exhibit not only large numbers of lymphoblasts but a severe anemia and a decrease in platelets, and enlargement of the spleen and lymph nodes would be present.

Examination of the bone marrow also serves as a useful means of differentiation between the two diseases. In acute lymphatic leukemia in children, sternal aspiration shows complete replacement of the bone marrow by lymphoblasts. In acute infectious lymphocytosis, on the other hand, the myeloid and erythroblastic elements are present in normal proportions and the only abnormality is the presence of normal lymphocytes in increased percentage.

Leukemoid Reactions.—The hyperleukocytosis cannot be regarded as a leukemoid reaction of the lymphoid type, for such a designation implies the presence of specific immature cells which occur in leukemia. Neither the blood nor the bone marrow showed atypical cells of the lymphocytic series. Also, while a leukemoid reaction resulting from infection is transitory, the blood picture in infectious lymphocytosis persists for a prolonged period. Cough was not present in any of the

TABLE 3.—Differential Diagnosis

Signs and Symptoms	Acute Infectious Lymphocytosis	Infectious Mononucleosis	Acute Lymphatic Leukemia
Fever and systemic symptoms.....	Absent, or present at onset only	Usually persists one to three weeks	Present at variable periods during course
Enlarged lymph nodes.....	Absent	Present	Present
Splenomegaly.....	Absent	Present in 50 per cent of cases	Present
Total leukocyte count.....	Hyperleukocytosis	Moderate leukocytosis	Ranges from leukopenia to pronounced leukocytosis
Lymphocytosis.....	Present	Present	Present
Diagnostle cells.....	Normal, small lymphocytes	Atypical and abnormal lymphocytes	Lymphoblasts
Anemia.....	Absent	Absent	Present
Thrombocytopenia.....	Absent	Absent	Present
Bone marrow.....	Increased number of normal small lymphocytes	Normal; occasionally atypical lymphocytes may be present	Lymphoblasts predominate
Heterophile agglutination test.....	Negative	Positive	Negative
Prognosis.....	Uniformly favorable	Uniformly favorable	Uniformly fatal

cytosis, on the other hand, of M. S. and K. C. in the present study, of the 2 patients reported previously and of 1 recently described by Duncan,³ examination of the bone marrow showed an increased number of normal small lymphocytes in the differential count.

Leukemia.—The extreme leukocytosis and the predominance of lymphocytes in acute infectious lymphocytosis have occasionally led to its confusion with acute lymphatic leukemia. The identification of the lymphoblast represents the most important element in the diagnosis of leukemia from the blood smear. Lymphoblasts are usually round, large and uniform in size, and the narrow zone of cytoplasm is basophilic and occasionally contains a few large vacuoles. But more distinctive is the nuclear pattern. Instead of masses of dense basichromatin, as found in the nucleus of the normal lymphocyte of acute infectious lymphocytosis, the chromatin of the nucleus of the lymphoblast stains lightly, is finely granular, stippled or sievelike and shows the presence of nucleoli. In acute lymphatic leukemia with a hyperleukocytosis of the magnitude found in infectious lymphocytosis the blood would

children, so that the extreme leukocytosis and lymphocytosis occasionally encountered in pertussis could be eliminated.

COMMENT

The cases of acute infectious lymphocytosis reported in this paper and those observed elsewhere give support to the view that this disease is both infectious and contagious. It may also occur sporadically, as noted in the earlier cases. Its communicability was demonstrated by its appearance in three members of one family and in a hospital contact. The cases have also provided an opportunity for acquiring additional information concerning the clinical and hematologic aspects of this disease since its initial description. It is obvious now, for instance, that the transitory nature of the hyperleukocytosis and the minimal symptoms and physical signs received undue emphasis in the earlier paper. The more recent studies show that the elevated leukocyte count usually persists for approximately three to five weeks. Furthermore, the clinical course may range in severity from one with mild and all but negligible symptoms, as in the contacts, to one of a moderate or pronounced degree, as in the case of M. S. in this report and in that recently described by Duncan.³

This wider experience justifies the view that acute infectious lymphocytosis represents a specific infection

5. Bernstein, A.: Infectious Mononucleosis, *Medicine* 19: 85 (Feb.) 1940.
6. Rohr, Karl: Neue Deutsche Klinik: Handwörterbuch der praktischen Medizin, Berlin, Urban & Schwarzenberg, 1937, vol. 14, p. 540.
Vogel, P., and Bassen, E. A.: Sternal Marrow of Children in Normal and in Pathologic States, *Am. J. Dis. Child.* 57: 245 (Feb.) 1939.

which can be separated from infectious mononucleosis, acute lymphatic leukemia and miscellaneous infections associated with lymphocytosis. Its development in 4 persons within a short time indicates that the blood picture cannot be regarded as a peculiar individual response to a nonspecific infection. The disease possesses a possible incubation period of twelve to twenty-one days and may be marked by varying degrees of constitutional reaction at the onset, such as vomiting, irritability and fever, together with acute abdominal signs and symptoms and occasionally signs of involvement of the nervous system. With the exception of evidences of infection of the upper respiratory tract there is an absence of significant physical changes, such as lymphadenopathy and a palpable spleen. The heterophile agglutination reaction is uniformly negative. In 2 of the cases the biopsy of a lymph node showed a strikingly similar microscopic appearance. Examination of the sternal marrow in the present cases and in those of the earlier group showed an increased number of small mature lymphocytes in the differential count but no replacement by lymphoblasts and lymphocytes, which occurs in lymphatic leukemia. The most characteristic feature of all, however, was the hyperleukocytosis with relative and absolute lymphocytosis persisting for a prolonged period. Normal small lymphocytes accounted for this increase and presented the most important diagnostic element of the blood picture.

A feature common to most of the cases is infection of the upper respiratory tract. The organisms obtained from routine cultures of material from the nose and throat of the children of the present group and in those studied previously probably represent secondary invaders. They were no different from those present in other patients with similar respiratory infections who showed no unusual hematologic response. Furthermore, when patients with infectious lymphocytosis have had other illnesses which were associated with a similar group of organisms, the blood on these occasions has shown a neutrophilic response. It is possible, therefore, that the inciting agent is a specific virus and that its isolation will depend on the examination of materials obtained directly from the nose and throat, specialized technics being employed. The immunologic tests carried out with serums from patients in the present study were negative for lymphocytic choriomeningitis and for influenza A and B virus. Should the etiologic factor eventually prove to be of a virus origin, its blood response would be unique, for in the group of virus diseases the blood picture is characterized by a leukopenia with a relative lymphocytosis. It is further interesting to note that the cases of acute infectious lymphocytosis have all been reported since 1939. The appearance of this disease within a relatively short period suggests infection by a causative agent of recent origin.

Although the microscopic picture of the lymph nodes from the 2 cases was remarkably similar, further biopsy studies will be necessary before it can be accepted as specific for this disease. The degeneration of the lymph follicles and the striking proliferation of the reticuloendothelium of the sinuses common to the two lymph nodes, probably represent the reaction to a toxic agent. The source of the extraordinary lymphocytosis of the peripheral blood cannot, however, be detected in the lymph nodes and must obviously be sought for elsewhere. Lymphocytes are known to originate in other

sites where lymphatic tissue is found, such as in the spleen and in the gastrointestinal tract.⁷ The presence of lymphocytes in increased numbers in the bone marrow indicates the activation of solitary nodules in this location,⁸ and these may serve as a contributory source for the cells in the peripheral blood.

SUMMARY

Four cases of acute infectious lymphocytosis were observed within a period of three weeks. Three occurred in one family and 1 in a hospital contact. Investigation of these patients and of 5 others observed in various hospitals in New York City within the past two years provided an opportunity for additional clinical and hematologic observations since the initial description of this disease. On the basis of more extensive experience the features of this disease may be summarized as follows:

1. Acute infectious lymphocytosis represents a specific entity which can be separated from infectious mononucleosis, acute lymphatic leukemia and miscellaneous infections associated with a lymphocytosis.

2. The disease is both infectious and contagious and has a possible incubation period of twelve to twenty-one days.

3. Hyperleukocytosis, with a relative and absolute lymphocytosis due to an increase in normal small lymphocytes, constitutes the most important element in the diagnosis. Elevated blood levels persist from three to five weeks. The normal lymphocytes in this disease are in sharp contrast to the atypical and abnormal mononuclear elements in infectious mononucleosis and to the lymphoblasts in leukemia.

4. Clinical signs and symptoms may be so mild as to escape attention, or the onset may be marked by varying degrees of constitutional reaction. The latter, of short duration, may include vomiting, irritability, fever, abdominal signs and symptoms and occasionally signs of involvement of the nervous system. Abdominal signs may be sufficiently pronounced to suggest an acute surgical condition.

5. Infection of the upper respiratory tract represents the most common finding in all cases. There is an absence, however, of significant physical changes, such as lymphadenopathy and a palpable spleen.

6. The heterophile agglutination reaction is uniformly negative. The biopsy of a lymph node in 2 of the cases showed a strikingly similar microscopic appearance, consisting in degeneration of the lymph follicles and striking proliferation of the reticuloendothelium of the sinuses.

7. Serologic reactions were negative for lymphocytic choriomeningitis and for influenza A and B virus. The etiologic agent may be an undetermined virus related to infection of the upper respiratory tract.

8. In all cases the disease was uncomplicated and had a uniformly favorable outcome.

9. The evidence indicates that acute infectious lymphocytosis represents a heretofore unrecognized communicable disease of recent origin, in which the blood picture serves as an expression of the infection.

7. Bloom, W.: Lymphocytes and Monocytes: Theories of Hematopoiesis, in Downey, H.: *Handbook of Hematology*, New York, Paul B. Hoeber, Inc., 1938, vol. 1, p. 405.
8. Bloom, W.: Lymphatic Tissue: Lymphatic Organs, in Downey, H.: *Handbook of Hematology*, vol. 2, p. 1461.

HUMAN DANDER

AN IMPORTANT CAUSE OF INFANTILE ECZEMA

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In previous reports evidence has been presented demonstrating the existence of an allergen in human dander, human hair from the scalp (probably including adherent dander) and in seborrheic eczema scales.¹ The allergen was detected by means of skin reactions in certain patients with eczema. In 9 of 11 adults with atopic eczema urticarial reactions were obtained to scratch tests. In all 9 cases reagins were demonstrated by local passive transfer. In 8 of 12 infants and young children with eczema, eczematous reactions (redness, swelling, papulation, scaling) were obtained to patch tests (fig. 1). Negative controls were carried out with both types of test. In the case of the patch tests 23 non-eczematous children, including 8 newborn infants, 9 other nonatopic children and 6 atopic noneczematous children, were tested. Twenty-two gave negative tests; 1 gave a moderately positive test. The etiologic significance of the urticarial reactions in the adults has not yet been investigated. The present study demonstrates the significance of the reactions to patch tests in the infants and young children. The latter series has been increased to a total of 20 cases; 15 reacted positively and 5 negatively.

The proof of the importance of human dander as a cause of eczema in infants and young children consists of:

1. The demonstration that a large proportion of eczematous patients give positive reactions to patch tests with human dander, whereas in noneczematous persons of comparable age the incidence of positive reactions is very low.

2. The evident fact that all children are exposed to human dander every day because all children are cared for by their parents, nurses or other attendants, all of whom have more or less dander whether they realize the fact or not. The child himself may have dander on his own scalp. The occurrence of the lesions on exposed skin areas and their frequent absence on areas protected by clothing is additional evidence favoring the concept of exposure to a surface contact agent.

3. The retrogression and disappearance of the lesions following avoidance of exposure.

4. The reproduction of the lesions at will on any given location by exposure of the chosen skin area to the dander.

Points 1 and 2 of this evidence have already been established. In order to demonstrate the two remaining

conditions, 4 patients were chosen for study. They were selected because they had typical cases of eczema with positive patch tests to human dander and because their mothers were interested and intelligent and seemed to be willing to cooperate.

CASE 1.—C. B., aged 12 months, had eczema on the face and on the upper and lower extremities of three months' duration. The father had asthma. Scratch tests to thirty-six foods and



Fig. 2 (case 1).—Eczema of upper and lower extremities and face before institution of measures directed at protection of the skin from contact with human dander.

inhalants were negative. Patch tests were definitely positive to human dander (stock dander, mother's dander and the patient's own dander) (figs. 2 and 3).

CASE 2.—B. F., aged 2 years, had eczema on the face, the arms, the forearms and the cubital and popliteal spaces of twelve months' duration. The mother had hay fever. Scratch tests were negative to thirty-six foods and inhalants. The patch test was definitely positive to human dander.

CASE 3.—C. E., aged 30 months, had eczema on the face and the upper and lower extremities of fifteen months' duration. There was no hay fever or asthma in the family, but one brother had eczema. Scratch tests were positive to egg, milk and orris root. Patch tests were definitely positive to human dander.

CASE 4.—D. B., aged 5 years, had had eczema on the face, arms, forearms, and popliteal spaces from October to June since 11 months of age. The mother had perennial hay fever and urticaria. Scratch tests were negative to thirty-six foods and inhalants. Patch tests were definitely positive to human dander, including dander from the mother's scalp.

The mothers were told that their children were allergic to human dander and that it might be an important cause of the eczema. In order to prove, however, that it actually was the cause it would be necessary to (1) make the present lesions disappear by protecting the involved areas from exposure to human dander and (2) reproduce the lesions at some new chosen location by intentional exposure to the dander.

Avoidance of dander was to be accomplished by the following routine: 1. Parents and others in contact with the child were instructed to wash their scalps

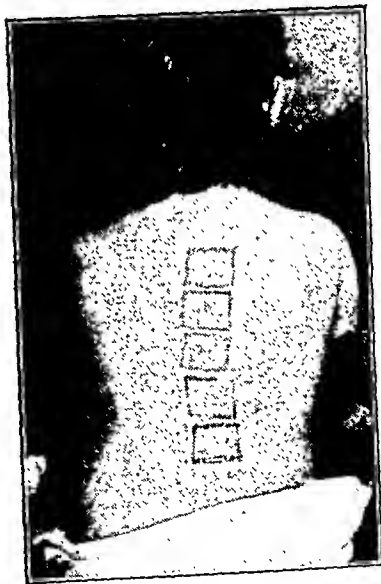


Fig. 1 (case 2).—Positive reactions to patch test with human dander, stock dander, mother's dander, child's own dander. Negative reactions to wool and dog dander.

From the Departments of Medicine and of Bacteriology and Immunology of the University of Louisville School of Medicine.
1. Simon, F. A.: On the Allergen in Human Dander, J. Allergy, to be published; Skin Reactions to Patch Test with Human Dander, Ann. Allergy, to be published.

thoroughly at least once a week with soap, water and brush. 2. The child's scalp was to be treated likewise. 3. The child was to wear long sleeves to the wrists and long stockings reaching above the knees. 4. No one was permitted to hold the child without first putting on a clean, washable jacket over his ordinary clothing and covering the scalp and hair with a clean cap or cloth arranged to enclose completely all the hair. 5. The child's face was not permitted to come in contact with the parent's face or hair, and the child's arms were not to be placed about the parent's neck.

Parents all freely admit that mutual affection between parent and child prevents these instructions from being carried out to the letter. As a matter of fact there is reason for believing that they were carried out very poorly in these cases. Even though they try, parents simply do not realize the importance of preventing the baby's face from coming in contact with their face, neck and shoulders, which are probably contaminated with dander. In 2 cases the lesions showed very definite and satisfactory improvement. In 1 case they almost entirely disappeared with the exception of a small area on the right cheek. (The mother usually holds this child on the left arm.) In the fourth case there was moderate improvement. This was a very affectionate child, and the father did not wash his scalp. These results were accomplished in less than four weeks in

child's abdomen for two or three minutes twice daily. In all 4 cases typical eczematous areas were produced at the site of application in one to three days (fig. 4).

SUMMARY

Evidence demonstrating the etiologic significance of human dander in the genesis of infantile eczema consists of: 1. Positive skin reactions to patch test with



Fig. 4 (case 3).—Typical eczematous lesions produced on previously uninvolved area by exposure of this area to human dander.

human dander in 15 of 20 infants and young children with eczema, whereas in 23 noneczematous infants and young children there was only one positive reaction to the patch test. 2. The fact that all children are exposed to human dander, either from their own scalps or from those of parents or others with whom they come in contact. 3. The prompt clinical improvement in 3 of 4 cases following the institution of measures directed at the avoidance of contact with human dander. 4. The reproduction of the lesions at will in 4 cases (out of four attempts) on a previously uninvolved skin area by exposure of this area to contact with human dander.

Heyburn Building.

Neurosurgery.—The specialty of neurosurgery was born at the turn of the present century and is unique in that it was largely the creation of two individuals, an Englishman and an American. Sir Victor Horsley laid its foundations, and Harvey Cushing built the edifice of special technic and knowledge that today stands as one of the notable achievements of modern surgery. Neurosurgery is concerned very largely with lesions within the cranium and the spinal canal that can be attacked surgically—new growths, certain types of inflammation and injuries. The neurosurgeon also treats lesions of the peripheral nerves, but these operations do not form a great part of his work.—Haagensen, C. D., and Lloyd, Wyndham E. B.: *A Hundred Years of Medicine*, New York, Sheridan House, Inc., 1943.



Fig. 3 (case 1).—Improvement in condition following diminution of contact with human dander.

February, a time when there is no seasonal improvement in this type of eczema. (In many cases improvement occurs in hot weather.) The abdomen was chosen as the site for reproduction of the lesions, because the skin of this area appeared to be normal in all 4 cases. The mother was instructed to rub her hair on the

Clinical Notes, Suggestions and
New Instruments

MEDITERRANEAN ANEMIA

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Mediterranean anemia is a familial disease of blood which has claimed wide interest in the United States. While formerly it was thought to be a disease of childhood incompatible with longevity, it is now known to exist in milder forms in adults, who are able to live relatively normal lives. In spite of the many reports in the literature dealing with description of cases, we feel that this case because it is so typical should also be recorded.

Our patient was born of Sicilian parents in Augusta, Sicily, and came to this country at the age of 5. His mother and father are in their sixties and are living and well. One brother died at the age of 3 years from an unknown cause. The other brother is 21 years of age and is serving with the United States Army in the Southwest Pacific. His sister, aged 14, has a peculiar anemia associated with an enlarged spleen.¹ From a description of her condition as given by our patient, she at times shows a yellow coloration of the eyes; however, she has never been hospitalized for an illness.

Results of Gastric Analysis

	Total Acidity	Free Hydro- chloric Acid
Specimen 1.....	25°	15°
Specimen 3.....	13°	0°
Specimen 8.....	28°	15°

As far as we have been able to ascertain, the parents' families have enjoyed good health. The maternal grandmother died at 85 and the grandfather at 80. The patient's mother had five brothers. One died at 35, as the result of an accident. Her four remaining brothers are in the Italian army. She also has three sisters; one living in New York is 60 years old and in good health; two are in their fifties, are living in Italy and are well. The paternal grandfather died at 83 and the grandmother at 79. The patient's father was an only child.

REPORT OF CASE

A youth aged 20 was admitted to the Brooke General Hospital, Fort Sam Houston, Texas, on June 22, 1943, because of a rash covering the extremities and trunk. The rash, which had been present for about four days, caused considerable itching. A diagnosis of poison ivy dermatitis was made and treatment instituted. One week later it had entirely disappeared.

At this time there were noted an icteric tint to the skin and an enlarged spleen, which prompted us to make further clinical and laboratory investigations. It was then learned that the patient had previously been admitted to another army hospital, in January 1943, because of sharp pain in the left upper quadrant of the abdomen, a sensation of abdominal fullness and fever. The discomfort lasted for about five days. He was hospitalized for forty-five days and then returned to duty.

A review by system revealed that the patient had suffered about twenty-five attacks of epistaxis during the past two years, each attack lasting for one or two days. There was no history of headaches, vertigo or sore throat. The patient stated that he could not run; running produced a sensation of fullness and sharp pain in the left upper quadrant. He also said that shortness of breath on exertion had been present since an attack of rheumatic fever two years before. At times his heart beats fast, but this is not related to exercise. During

these periods of rapid heart rate there is some difficulty in getting his breath. He has never had edema of the ankles. There has been no cough; his weight has not changed in the last three years; his appetite is good, and bowel movements are satisfactory, with stools of a normal brown color. There is no pain on urination, nor is there nocturia. There has been no variation in the color of his urine. He sleeps well, but it is necessary for him to use one pillow. He says that he does not have numbness or tingling in his hands or feet, though he admits having occasional cramping pains in his calf muscles at night, which require him to get out of bed. He has had mumps and rheumatic fever. The rheumatic fever started in June 1941, and he was in bed for seven months. During that time there was swelling of his legs and feet, and he had continuous fever for about one month.

Physical examination showed his height to be 66½ inches (169 cm.), his weight 148 pounds (67.1 Kg.), and his blood pressure 120 systolic and 80 diastolic. He is well developed

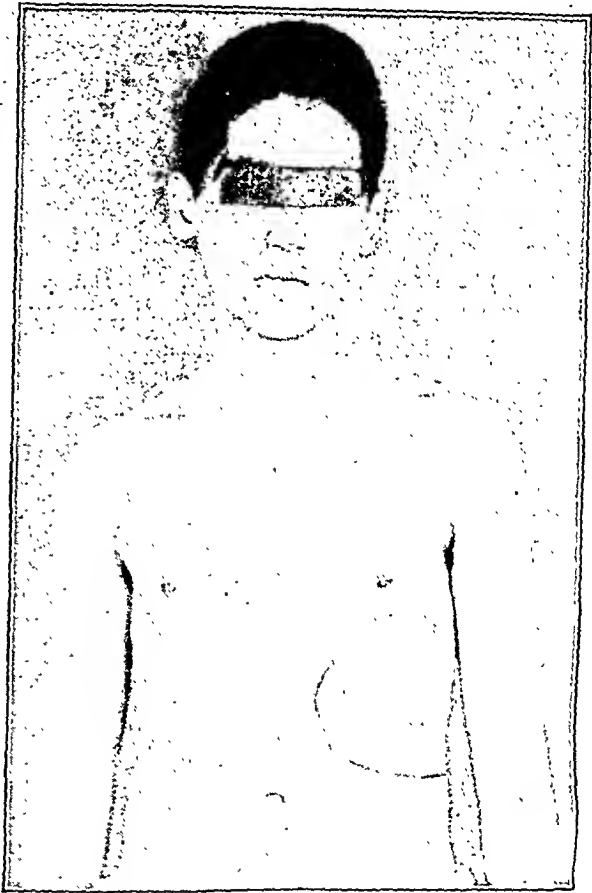


Fig. 1.—Line of mass penciled on abdomen.

and well nourished and appears to be intelligent. The hair is coal black and the skin a bronze color. His face is broad and his eyes small and slanting. The frontals are prominent above the eyes, and the bridge of the nose is flat. The scleras have a yellow color, and the pupils react to light and in accommodation. The ears, mouth and throat are not remarkable; the thyroid is not palpable, and the thorax is well developed. No rales can be heard in the lungs. The heart is not enlarged; a soft systolic murmur is heard at the apex, but a thrill cannot be detected. A large hard mass is palpable in the left upper quadrant of the abdomen; it extends down to the umbilicus and moves with respiration. This is thought to be the spleen. The liver is not enlarged. The inguinal nodes show moderate enlargement. The urethral orifice is located about 1 inch from the tip of the glans penis and on the inferior surface of the shaft. No abnormalities of the anus and rectum are noted. The extremities are well developed. The reflexes are equal and active. The response to the tuning fork is normal.

Complete blood counts have been reported as follows: On June 22 the red blood cell count was 3,250,000, with 70 per cent hemoglobin; the white cell count was 6,750, with 61

1. La Bella, L., Middletown, Conn.: Personal communication to the authors.

per cent polymorphonuclears, 38 per cent lymphocytes and 1 per cent monocytes. On June 24 the red blood cell count was 3,070,000, with 65 per cent hemoglobin; the white cell count was 7,750, with 51 per cent polymorphonuclears, 47 per cent lymphocytes and 2 per cent eosinophils. On July 1 the red blood cell count was 2,850,000, with 70 per cent hemoglobin,



Fig. 2.—Slight osteoporosis around elbow.

and the white cell count 9,800, with 61 per cent polymorphonuclears, 38 per cent lymphocytes and 1 per cent monocytes. Poikilocytosis and anisocytosis were present. Macrocytes and microcytes were numerous, and many cells had the appearance



Fig. 3.—Calvarium from front.

of target cells. These target cells made up 10 to 15 per cent of the red blood cells on the smear. Nucleated red cells were counted and estimated to be 10 per cent of a smear. The Kahn reaction of the blood was negative. The result of a fragility test was reported as follows: Hemolysis began at 0.32 and was complete at 0.2 per cent, while the control began

at 0.42 and was complete at 0.36 per cent. The platelet count was 375,000 per cubic millimeter. The icterus index was 23. Gastric analysis revealed the values given in the table. Special studies failed to disclose any sickling of the red blood cells. The prothrombin time of the patient was 19 seconds, and that of the control 20 seconds. There was no retraction of clot in twenty-four hours. Determinations of blood chemistry showed phosphorus content 4.5 mg. per hundred cubic centimeters, calcium content 9.6 mg., and nonprotein nitrogen content 35 mg. Urinalyses did not show the presence of albumin or sugar and there were no abnormalities of sediment; however, chemical studies revealed 8 mg. of urobilin per hundred cubic centimeters of urine. Roentgenograms revealed a thickening of the calvarium but no involvement of the inner table. This area showed a moderate degree of osteoporosis. A roentgenogram of the spine revealed that the trabeculae were all greatly widened. No other pathologic changes were noted in the bones.

COMMENT

This patient shows all of the characteristics described for Mediterranean anemia: Sicilian parentage, mongoloid facies, splenomegaly, and changes in the blood and bones.

This disease is found in inhabitants of the eastern Mediterranean countries, including Italians, Greeks, Armenians and

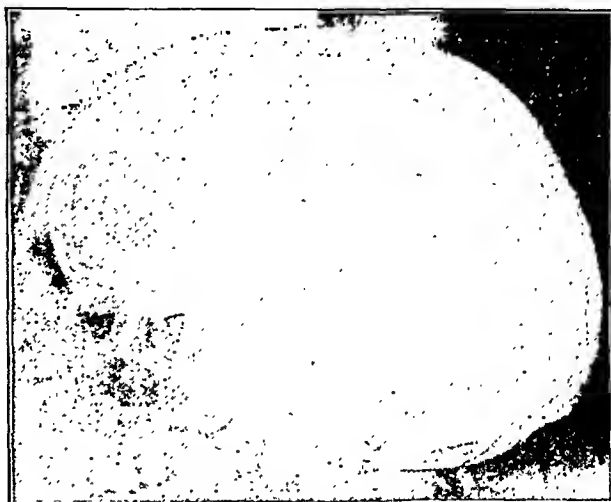


Fig. 4.—Thickened calvarium.

Syrians. A few exceptions have been discovered; for example, a Negro child² and a child of Chinese parentage³ have been reported as having it.

The patient's brother who died at the age of 3 might have died of this disease, though we are lacking information concerning the cause of death. His sister, aged 14, has anemia and splenomegaly. There is a strong possibility that she is also suffering from Mediterranean anemia, as it is well recognized that this is a familial disease. The brother in the armed forces is said to be well, although there is a strong possibility that the hematologic characteristics may also be present in him, as has been shown by laboratory investigation in similar cases.⁴

The parents, grandparents, uncles and aunts of this patient, as far as we have been able to learn, have enjoyed good health, and death occurred only after the normal span of life had been completed. Mild forms of this disease may have existed in some of these persons. One or both parents of this patient, whom, unfortunately, we could not study, would necessarily show some of the traits of this disease. In some instances the trait has shown mendelian dominance,² while in others it has been

2. Dameshek, W.: *Am. J. M. Sc.* 205: 643 (May) 1943.

3. Foster, L. P.: Cooley's Syndrome (Erythroblastic Anemia) in Chinese Child, *Am. J. Dis. Child.* 59: 828 (April) 1940.

4. Smith, C. H.: *J. Pediat.* 20: 370 (March) 1942. Dameshek,² Wintrobe, Matthews, Pollack and Dobyns.⁵

thought to be recessive.⁵ Dameshek has suggested that the milder form of the disease is transmitted as a mendelian recessive and that more severe forms require homozygous genes. Obviously, further study will be needed to clear up this interesting point. That a mild form of the disease can exist in a person without anemia or osseous changes is fairly well established. In such instances the trait is detected by the presence of abnormal erythrocytes, such as anisocytes, poikilocytes, stippled cells, target cells, and an increased resistance to hypotonic solution of sodium chloride.⁶

The mongoloid facies often described in the literature is not a constant feature. It seems to occur more frequently in association with the more severe form, where there are osseous changes, and it can be considered a part of the disease only when such changes are actually present. The high cheek bones, prominent frontals and flattened bridge of the nose are characteristic. Occasionally, as suggested by Atkinson,⁸ this characteristic may be found in an otherwise normal person of Mediterranean origin. In such a case, oriental ancestors must be considered. Our patient has the mongoloid appearance, and we believe that it is probably due to the disease.

The hemogram is typical, in that a mild anemia with a low hemoglobin content was present, together with anisocytes, poikilocytes and stippled cells, nucleated red cells and target cells. An anemia may not be present; in fact, the red blood cell count may be normal or increased, as shown by cases described by Wintrobe⁷ and Dameshek.²

The increased resistance to hypotonic saline solution is a constant feature and appears as the sole characteristic in persons with a mild form of the disease.⁸

Nucleated red blood cells are frequently not seen in adults, though our patient had a count of 10 to 15 per cent in each smear examined. Wintrobe was able to find them in only 1 patient after the injection of epinephrine hydrochloride.

Target cells were numerous in the smears in our case. Six slides were examined and found to contain 8 to 10 per cent of these peculiar cells. According to Barrett,⁹ target cells are bowl shaped erythrocytes which have a central projection; such cells when viewed on the broad end would give the appearance of a target. This impression was shared by Bohrod¹⁰ after studying smears with oblique illumination and has relief photographs. Whether these cells are abnormal forms or merely young forms is not clearly understood. Bohrod has expressed the belief that they occur normally in the regeneration of red blood cells, because they are usually seen when the reticulocyte count is high and are found in the blood after hemorrhage. These cells are common in patients with sickle cell anemia and have been observed in patients with lead poisoning and with hepatic disease.

Our patient showed extensive osseous changes involving the cranium, vertebrae, clavicles, ribs and bones of the extremities. Osteoporosis was widespread in all of the bones mentioned. Heavy trabeculations and thinning of the cortex were conspicuous in the long bones of the extremities. Thickening of the cranial vault with widening of the diploe was present, and both the inner and outer tables were considered to be somewhat thin.

These observations are consistent with those described by Caffey¹¹ and others;¹² though vertical striations connecting the inner and outer table, as found in cases of the more severe form, namely Cooley's anemia, were not demonstrable in this case.

A SEVERE REACTION FOLLOWING ADMINISTRATION OF DIASONE

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Diasone (the disodium formaldehyde sulfoxylate derivative of diaminodiphenylsulfone) is one of the sulfone compounds being given investigative use in the treatment of tuberculosis at the Mineral Springs Sanatorium and several other sanatoriums in the United States. It is not yet possible to make a conclusive report either on the therapeutic value of the drug or on its various side effects. However, one severe reaction was encountered during administration of the drug, and this case is being reported as a note of caution.

REPORT OF CASE

A white woman aged 19, whose condition had been diagnosed previously as far advanced pulmonary tuberculosis, entered the sanatorium on Aug. 1, 1943. The roentgenogram of the thorax made at the time of admission revealed a large cavity in the apex of the left lung and considerable exudative infiltration throughout the left lung. The patient was poorly nourished and appeared ill, but she had only a low grade fever. Her hemoglobin was 82 per cent (Sahli method), the leukocytes numbered 11,800 per cubic millimeter of blood, and the blood sedimentation rate was 27 mm. at the end of an hour (Cutler method). Urinalysis was negative.

Administration of diasone was begun on August 1, the date of the patient's admission to the sanatorium. Although an attempt to establish pneumothorax on the left side was planned, it was hoped that the drug might be helpful in clearing up the fresh exudative infiltration shown in the roentgenogram of the thorax. The dose of diasone was 1 Gm. daily for two days and then 1.33 Gm. daily for the next twenty days. A total of 28.67 Gm. was given in twenty-two days. For three weeks symptoms referable to the drug did not appear, and the patient began to show slight improvement clinically. An initial pneumothorax was established on August 10, without complications.

During the afternoon of August 22 the patient had a moderately severe chill, and her temperature, which had previously been normal, rose to 102 F. That evening her throat began to feel sore, and a bright red, blotchy, maculopapular eruption appeared on the chest wall. The patient received the usual dose of diasone on August 22 but received none after that date. From August 22 to 27 her symptoms became progressively worse. Her temperature reached 104.2 F. and her pulse rate was as high as 160 per minute. The rash spread all over her body, legs and arms and finally covered her face. Circumoral pallor was pronounced. A small amount of eruption was present on the palms and the soles. The patient's palate and pharynx were covered by a red punctate rash similar to that over the rest of the body. Her throat became extremely sore, so that she could not swallow. The tongue was furred. The patient became nauseated on the second day of the reaction and thereafter vomited bile tinged fluid frequently. Soon after the onset she complained of headache.

On August 26 the eruption became vesicular. Some of the vesicles were true bullae, each one containing several cubic centimeters of clear, straw colored fluid. On August 28, six days after its appearance, the eruption began to disappear with generalized exfoliation. Even the finger nails peeled. The patient's face cleared up in about three days, but the eruption on the remainder of the body disappeared more slowly and was followed by brownish, splotchy pigmentation, which gradually faded but was still present in some degree in February 1944, when this paper was written.

At the height of the reaction the patient's leukocyte count was 19,000 per cubic millimeter of blood; 82 per cent of the leukocytes were polymorphonuclear leukocytes, 10 per cent were

5. Dameshek.² Atkinson.⁸

6. Wintrobe, Matthews, Pollack and Dobyns.⁷ Atkinson.⁸

7. Wintrobe, M. M.; Matthews, E.; Pollack, R., and Dobyns, B. M.: Familial Hemopoietic Disorder in Italian Adolescents and Adults Resembling Mediterranean Disease (Thalassemia), *J. A. M. A.* **114**:1530 (April 20) 1940.

8. Atkinson, D. W.: *Am. J. M. Sc.* **198**:376 (Sept.) 1939.

9. Barrett, A. M.: *J. Path. & Bact.* **46**:603 (May) 1938.

10. Bohrod, M. G.: *Am. J. M. Sc.* **202**:869 (Dec.) 1941.

11. Caffey, J.: *Am. J. Roentgenol.* **37**:293 (March) 1937.

12. Karshner, R. G.: *Am. J. Roentgenol.* **20**:433 (Nov.) 1928.

LeWald, L. T.: *Radiology* **18**:792 (April) 1932.

Dr. Pyle is on special assignment in Mineral Springs Sanatorium. The diasone used in this study was supplied to us by Dr. George Hazel of the Abbott Laboratories, North Chicago, Ill.

lymphocytes and 8 per cent were monocytes. Smears made from the throat showed mixed bacterial flora. Albuminuria, grade 1 (grading is on a basis of 1 to 4), was present and a few hyaline casts and pus cells were found in the urine.

Treatment was symptomatic and consisted of calamine lotion used locally, sedation, and the intravenous administration of fluids as needed. On August 27, 500 cc. of citrated blood was given intravenously. The patient's fever had already begun to decrease, but after the transfusion her other symptoms, especially the angina and persistent vomiting, began to improve rather dramatically. Her temperature and pulse rate continued to subside and had returned to normal by August 31, nine days after onset of the reaction.

COMMENT

It is felt that this reaction represents an idiosyncrasy to the sulfone compound diasone, even though the patient had received the drug continuously for three weeks previously without any untoward effects. The dosage was not large in comparison with the amount administered to other patients. Among the 63 cases in our series, this has been the only reaction of any severity encountered. On being questioned, the patient stated that during the fall of 1942 she was given a sulfonamide compound during an attack of influenza. She received 2 Gm. daily for four days. On the day after use of the drug was discontinued a generalized eruption developed which itched intensely and resembled hives. It lasted five days but was not accompanied by any systemic reaction. This is the only time the patient has ever taken a sulfonamide drug. It is possible that this eruption also represented a sensitivity, and the question arises as to whether the present reaction to a sulfone compound is related to the sensitivity to the sulfonamide. Kasselberg¹ reported a severe, pemphigus-like reaction following administration of sulfamerazine which closely resembles the case here described.

Council on Foods and Nutrition

THE COUNCIL ON FOODS AND NUTRITION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

GEORGE K. ANDERSON, M.D., Secretary.

CHEMICAL PRESERVATIVES AS HOME CANNING POWDERS

With the interest in home canning of fruits and vegetables being revived by the wartime shortages of food and the desire to preserve victory garden produce, chemical preservatives designated as "canning powders" or "compounds" are again appearing on the market. From time to time these have been condemned as unsafe and undesirable, but new ones always spring up under a new guise.

There have been a number of chemical compounds used in the past as food preservatives. Such harmless substances as salt, vinegar, sugar or spices are in good repute and are still commonly used today under appropriate conditions. Others, such as formaldehyde, salicylic acid, borax, phenol and monochloroacetic acid, have been ruled out as food preservatives either by law or by common acknowledgment of their toxic properties. Boric acid was specifically declared unsuitable for use in foods in Great Britain by law in 1927, and foods containing this substance have been prohibited in interstate commerce in the United States for many years.

There are some chemical materials, however, which because of certain antiseptic properties attributed to them and because of their apparent lack of definite toxic effects have enjoyed periodic use as preserving agents. In this category are found sodium benzoate, the sulfur containing compounds of the type of bisulfites and acetylsalicylic acid. These chemicals are the ingredients commonly found in the proprietary compounds which

are promoted as canning powders. They are marketed under such names as "Jiffy-Pak," "Fruit Kepe" and "Mrs. Price's Canning Compound." Another, "Frute-Lite" is recommended to keep fruit from darkening and might be used in canning. Not one of them is sufficiently reliable or effective under the conditions which may be met to warrant its use.

Sodium benzoate has a limited usefulness as a bacteriostatic agent in foods, and its presence is permitted in certain foods in amounts not greater than 0.1 per cent provided it is so declared on the label. Its toxicity is low, since it has been shown that as much as 0.5 to 1 gram can be taken daily without harmful effect. Its primary effect is merely a restraining one on bacterial growth; it cannot be depended on to check growth completely or to kill bacteria. As a result, its usefulness is limited to situations in which it is desired to hold food for a short period of time, and even this application is suited to only a few types of foods. Therefore sodium benzoate has no place in home canning procedures.

Sodium bisulfite or metabisulfite is the commonest chemical substance marketed as a canning powder at the present time. It depends for its bactericidal properties on the production of sulfur dioxide in an acid medium. For this very reason it is decidedly unreliable, because many of the home canned products are weakly or not at all acid, and these very ones are the potential sources of the deadly botulinus toxin. There are numerous other reasons why the use of bisulfites is decidedly unsatisfactory. While sulfur dioxide has antiseptic properties, one can never be sure of attaining sufficient concentration from the use of a tablet dropped into a canning jar. If adequate concentration is secured, and one never knows, it may be subsequently lost owing to leakage of the gas from an insecurely sealed can. Then again instances have been reported in which inadequate dispersion of the sulfur dioxide throughout the can permitted bacteria to thrive in pockets never reached by the gas.

It is true that sulfur dioxide has a limited usefulness in connection with foods, notably in dried fruits, in which its use prevents darkening rather than exerts a preserving effect. The possibility of toxic effects from the small quantities of this compound which would be ingested from these sources is very slight. Studies on this problem indicate that consumption of small amounts is innocuous. Its presence in home canned foods which would be eaten often could conceivably have cumulative effects with serious consequences. For another reason sulfur dioxide should be avoided in home canning of foods. This is because it has been found that its presence has the very undesirable effect of destroying a great share of the vitamin B₁ of the food. At the same time it must be admitted that sulfuring helps retain the ascorbic acid and carotene.

Acetylsalicylic acid in the form of the familiar 5 grain aspirin tablet has also been advocated as a home canning aid in concentration of one tablet to the quart. This compound is no more suitable for use as a home canning agent than any of the others mentioned. It has but feeble antiseptic properties on a limited number of micro-organisms, acting more as an inhibiting agent than as a killing agent. It certainly could not be relied on to rid a canned food of the rugged organisms which so often are responsible for food poisoning and botulism. Its toxicity to the consumer would be negligible in most cases, but, it has the undesirable feature of causing distressing and often alarming symptoms in individuals who are sensitive to it.

From the foregoing discussion it should be evident that there is available today no chemical preservative which is satisfactory for home canning either as the sole agent used or as an adjunct to rapid heat processing methods. The primary danger of such methods lies in their ineffectiveness as sterilizing procedures, while the possibility of toxicity, although not great, must be kept in mind where such foods are consumed in sufficient quantities. The fact remains clear that, for proper home canning, reliance must be placed on careful attention to sanitary precautions and adequate methods of heating, with pressure cooking equipment for meats and vegetables and thorough cooking of fruits for the proper length of time as recommended in authoritative publications such as those of the U. S. Department of Agriculture or the various state extension services.

1. Kasselberg, L. A.: A Severe Pemphigus-like Reaction Following Administration of Sulfamerazine, J. A. M. A. 123: 1035-1036 (Dec. 18) 1943.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JUNE 3, 1944

THE FIFTH WAR LOAN DRIVE

On June 12 the Treasury Department of the United States will launch the Fifth War Loan Drive with a campaign that will continue through July 8. The Treasury Department reports that taxes are providing less than half the money required to continue the war effort. The goal of the Fifth War Loan Drive is \$16,000,000,000, to be raised entirely from investors other than commercial banks. Of the total, \$6,000,000,000 is to come from sales of bonds to individuals. In the Fourth War Loan individual subscribers invested \$5,300,000,000. The records indicate that more than 55,000,000 Americans own at least one war bond. No doubt every physician invested in bonds during previous drives and may be counted on to do his part in this drive also. The advertisers in all the publications of the American Medical Association have been emphasizing to our readers again and again the desirability of the war bond as an investment for physicians. The doctor of today is so driven in his service to his community in a great variety of ways that the problem of investing such surplus funds as he may have is a special one. He will find in the war bond the simplest and most direct answer to that problem.

In previous drives many a hospital staff, including the doctors, the nurses and all the lay employees, have cooperated for the purchase of specific equipment such as airplane ambulances, hospital service planes, field ambulances and similar medical equipment. That opportunity still exists and constitutes a focus around which organized medical groups may center their efforts.

Now more than ever there is tremendous satisfaction in setting quotas for extra purchases of bonds in terms of hospital equipment. A collecting station may be equipped for \$4,200, a clearing station for \$30,000, an evacuation hospital for anywhere from \$65,000 to \$90,000. Blood transfusion apparatus, hospital sterilizers, physical therapy apparatus and all such materials may well be the center of a drive for increased sales

of bonds. If any group is especially ambitious, a hospital ship costs \$3,000,000 and the medical equipment for the ship \$40,000 additional.

Incidentally, a special citation signed by Surgeon General Norman T. Kirk is available for presentation to any person who sells more than twenty-five E bonds amounting to \$5,000 or more for the purpose of providing hospital equipment and to organizations that sell more than \$25,000 of E bonds earmarked for hospital equipment. Only a hospital plane may be named by a sponsoring group.

The American Medical Association as an organization purchases to the limit allowable of each issue of war bonds that is offered. The office of the Secretary of the Association has communicated directly with the officers of all state medical societies, urging them also to participate. Regardless of what other services a physician, a hospital or a medical organization may render in the war effort, the purchase of war bonds is an activity which benefits not only the purchaser alone but all of us.

DEFICIENT INSTRUCTION IN BIOLOGY IN HIGH SCHOOLS

The medical profession cannot be indifferent to widespread public ignorance of biologic facts and principles. The health of a people must rest in part on well disseminated knowledge of man's biologic friends and enemies, of a sound nutrition, of man's own bodily functions, of how and what he inherits, and of the sure relation between cause and effect. Much experience has shown that comprehension of these and other related matters is usually not obtained through short exposures to formal training in the various biologic subjects in our schools. A recent report¹ on this subject by a committee appointed by the Union of American Biological Societies indicates serious deficiencies which call for suitable action by those who can assist in obtaining adequate biologic instruction in our high schools.

The committee's report was based on information secured from 3,200 teachers of one or another biologic subject (biology, zoology, botany, physiology, general science) in 3,000 high schools located in all parts of the United States. In general, these schools were better than the average high school and had a larger than average enrolment. Nevertheless, only 53 per cent of these teachers said they had trained especially to teach biology; 14 per cent reported that in the curriculum of their school a unit of biologic study had been replaced by a social study within the past five or ten years; 39 per cent stated that extracurricular school activities interfered much or seriously with their teaching; only 70 per cent were teaching in rooms specially equipped for their subject; many teachers—apparently baffled

1. Riddle, Oscar, editor, and others: *The Teaching of Biology in Secondary Schools of the United States: A Report of Results from a Questionnaire*, Lancaster, Pa., Science Press, 1942, pp. 1-76.

by the limitations of time and facilities for teaching a science—largely abandoned effort to do so and focused instead on technologic items such as conservation, sanitation, forestry, health, nutrition and economic biology.

Realistic consideration of specific means of obtaining satisfactory instruction in real biologic science, followed always with reasonable amounts of its many practical applications, leads to the conclusion that this is not attainable unless the school offers two or more years of instruction in this broad field. Most high schools are small schools; in them it is only when two years of study in the field of life sciences is offered that there is probability that the subject will be taught by one who is trained in biology. Half of the high schools of the country have five teachers or less; three fourths of them have ten teachers or less. Yet the small school must or does offer twelve to twenty subjects. The few teachers in these schools are selected for their ability to teach subjects offered during two, three and four years; a one year subject is left to some one who does not have a full schedule of teaching. Again, the facts that all future citizens should know of plant science, animal biology and human physiology and hygiene, together with the many personally significant applications of these sciences, cannot be learned in acceptable degree by high school pupils in less than two years. Study of these life sciences for two years would account for only one tenth of the total effort of the high school pupil. Yet this field of study includes what is known of our physical selves, of our relation to the living environment of plants and animals and of the sources of our food, clothing and shelter. This is the subject of which Charles W. Eliot, chemist and former president of Harvard, said "The human race has more and greater benefits to expect from the successful cultivation of the sciences which deal with living things than from all the other sciences put together."

Men and organizations other than science teachers in high schools must actively assist a current effort of the Union of American Biological Societies to obtain adequate instruction in the life sciences in our secondary schools. A year ago the Association's Reference Committee on Hygiene and Public Health adopted the following resolution:²

Resolved, That the American Medical Association through its Bureau of Health Education encourage close cooperation between the constituent state medical associations and component county medical societies and the teachers of science in their respective communities to the end that intelligent instruction in science and biology be given the youth of America.

This type of cooperation, if actively practiced, may yield significant results. The properly expressed interest of the individual physician, or the active interest of the county medical society, may often tip the balance in favor of a two year place for the life sciences in the local high school.

But much besides will have to be done before the words of Arthur D. Little are happily outdated: "In the past the world suffered grievously from lack of knowledge; today it suffers from its rejection or misapplication."

REGISTRATION UNDER THE HARRISON NARCOTIC ACT

Physicians, other than those in the armed services, who are registered under the Harrison Narcotic Act or under the Marihuana Tax Act must effect reregistration on or before July 1 to avoid a penalty. Each year, despite the annual warnings in *THE JOURNAL*, this requirement is overlooked by some physicians and unpleasant consequences follow. Failure to reregister promptly adds a penalty of 25 per cent to the tax payable and in addition subjects the physician to the possibility of a fine not exceeding \$2,000 or to imprisonment for not exceeding five years, or to both. As an act of grace, the Commissioner of Internal Revenue has in past years given some tardy registrants the choice between paying sums by way of compromise, a procedure authorized by law, or of accepting criminal prosecution. If this procedure does not produce the required promptness in reregistration, the commissioner is required to institute criminal prosecution.

A physician in the armed forces need not reregister. If he receives an application form for reregistration, it should be returned to the office of the Collector of Internal Revenue together with a statement showing that he is in service and requesting that the registration number previously assigned to him be reserved. A physician on entering service should return all unused order forms to the collector's office and should dispose of all narcotics or cannabis on hand either by returning them to the wholesale concern from which purchased, if the packages are in unbroken form, or by transferring the narcotics or cannabis to another physician after having obtained permission for such transfer from the office of the Collector of Internal Revenue.

A physician entering service also is required to return the special tax stamp to the collector, who will mark the stamp "Business Discontinued" with the date and return the stamp to the physician to be retained in his files for a period of not less than two years. Where a physician is discharged from military service and reengages in civilian practice during the same fiscal year for which his registration has been canceled he will not be required to secure another stamp and pay a second tax for the remainder of that fiscal year. Such a physician should notify the office of the Collector of Internal Revenue, within thirty days of resuming practice, of his intentions to reenter the private practice of medicine. He should return the special stamp retained in his files to the collector so that the notation "Business Discontinued" may be crossed out and a proper notation made on it, indicating that private practice has been resumed.

2. Minutes of the House of Delegates: Report of Reference Committee on Hygiene and Public Health, J. A. M. A. 122:612 (June 26) 1943.

ACCLIMATIZATION

One of the vital equilibriums in man is the equilibrium involved in the maintenance of body temperature. Both chemical and physical factors are operative in sustaining this steady state, but the exigencies of the present war have emphasized anew the necessity of practical knowledge regarding the functional adjustments in acclimatization. Already battles have been fought in all the latitudes of the earth; utilizing air travel, Kiska and Murmansk are only hours away from New Guinea and North Africa. Furthermore, the ordinary altitude of aerial combat has risen to several times that which was common twenty-five years ago, and the concomitant decrease in temperature has raised serious problems.

One of the adjustments to increased environmental temperature is an increase in red cell and plasma volume,¹ and the reversal of this change occurs when the subjects are exposed to cold. Apparently, this is a device for more effectively transferring body heat from the deep tissues to the surface, where it can be dissipated. The methods of removal of heat from the surface of the body change with surrounding temperature. Burton and his co-workers² point out that evaporation from the skin plays an important part in heat exchange in a warm environment, whereas radiation and convection are more significant in the cold. Cardiovascular alterations are important factors in successful acclimatization to heat. In a study of a large number of human subjects, Taylor, Henschel and Keys³ have shown that pulse rate and rectal temperature, which rise unduly in response to work in a hot atmosphere, show the normal response after about four days under such conditions. This "training" effect will persist for some three or four weeks during which the subjects remain at ordinary temperatures.⁴

The significance of the loss of electrolytes in sweat was early emphasized by Moss,⁵ who related the symptoms of muscular cramps of miners and stokers to the failure to replace the salts lost in the sweat. That some degree of adaptation with respect to the conservation of electrolytes occurs in profuse sweating is indicated by the observations of Dill and his associates;⁶ they found that in extreme dry heat as well as in humid heat the volume of sweat is increased but that the salt lost through this channel is reduced. There is thus effected an economy of electrolyte while at the same time the benefit of heat loss through evaporation is secured.

That the recognized chemical and physical factors ordinarily operating in the body in acclimatization, may be subject to less well known influences is indicated by the report of Wolkin and his associates⁷ in the Medical Corps. These officers describe a type of collapse not identical clinically with heat stroke or heat exhaustion but apparently correlated with functional failure of sweat glands on the body below the level of the neck. A consideration of manpower efficiency in the present emergency forcibly directs attention to the physiologic chemistry of acclimatization.

Current Comment

SEEING-EYE DOGS AND ELECTRICAL EQUIPMENT FOR THE BLIND

In this issue of THE JOURNAL (page 321) appears an article by Brig. Gen. Charles C. Hillman of the United States Army medical department calling attention to the rehabilitation of the blind and the deafened. Some months ago THE JOURNAL noted that the total blinded in the first world war had been well under 500 for both Great Britain and the United States. In the present war, according to the statement by General Hillman, there were only 73 totally blinded in the Army to March 1, 1944. It will be observed from General Hillman's report that it is estimated that not more than 10 per cent of the blind would benefit by the use of a so-called seeing-eye dog. Nevertheless, on May 25 the President signed a bill which had been passed by the House and the Senate appropriating \$1,000,000 to be used by the Administrator of Veterans' Affairs under such regulations as he may prescribe "to provide seeing-eye or guide dogs trained for the aid of blind veterans who are entitled to disability compensation or pension under laws administered by the Veterans' Administration, and to pay all the necessary expenses of such veterans incurred in obtaining and becoming adjusted to such dogs and in traveling to and from their homes for that purpose." This action was taken by the House and the Senate and the President, notwithstanding that competent representatives of all the agencies concerned, including the Veterans' Administration, indicated that the need for seeing-eye dogs was not beyond what could now be provided by existing private agencies in this field. Incidentally, Congressman Cole of New York in discussing the legislation was greatly distressed lest the cost of supplying a dog would be about \$1,000 and that therefore only 1,000 blind veterans could be accommodated. He inquired "how the Veterans' Administration is going to determine which 1,000 of the blind veterans will receive dogs." Fortunately the rationality of such legislation was saved at perhaps the last moment by the addition of an amendment which says that the funds may be used "also to provide such veterans with mechanical electronic equipment for aiding them in overcoming the handicap of blindness." Under this amendment blind veterans may

1. Bazett, H. C.; Sunderman, F. W.; Doupe, J., and Scott, J. C.: *Am. J. Physiol.* **129**: 69, 1940.

2. Burton, A. C.; Scott, J. C.; McGlone, B., and Bazett, H. C.: *Am. J. Physiol.* **129**: 84, 1940.

3. Taylor, H. L.; Henschel, A. F., and Keys, A.: *Am. J. Physiol.* **139**: 583, 1943.

4. Robinson, S.; Turrell, E. S.; Belding, H. S., and Horyath, M.: *Am. J. Physiol.* **140**: 168, 1943. Henschel, A.; Taylor, H. L., and Keys, A., *ibid.* **140**: 321, 1943.

5. Moss, K. N.: *Proc. Roy. Soc. London*, B **95**: 181 (1923-24).

6. Dill, D. B.; Jones, B. F.; Edwards, H. T., and Oberg, S. A.: *J. Biol. Chem.* **100**: 755, 1933. Daly, C., and Dill, D. B.: *Am. J. Physiol.* **118**: 285, 1937.

7. Wolkin, J.; Goodman, J. I., and Kelley, W. E.: *Failure of the Sweat Mechanism in the Desert*, *J. A. M. A.* **124**: 478 (Feb. 19) 1944.

be assisted with "talking-book machines, braille typewriters, watches, electrical recording machines, which are used for writing letters, and other electrical and mechanical appliances and devices being developed for the blind." These, according to the American Foundation for the Blind, would be of great help and in some cases even more desirable to the blinded veterans than seeing-eye dogs.

AMERICAN JOURNAL OF PSYCHIATRY: CENTENNIAL ISSUE, 1844-1944

The centennial anniversary issue of the *American Journal of Psychiatry* presents a wealth of material of interest to psychiatrists, physicians and the public. The literary activity of the *Journal* for the past hundred years is minutely analyzed in a paper by William Rush Dunton Jr. The growth of the science of psychiatry, the changing concepts and the striking personalities responsible for this growth pass in a skilfully recorded review. Clarence O. Cheney contributes an interesting biographic sketch of that undeservedly forgotten Samaritan Dorothea Lynde Dix. In "Some Trends in Psychiatry" Abraham Myerson traces the psychiatric thought through Kraepelin, Freud and Pavlov. Alan Gregg, in a humorous but all too true history of Preserved Jones, poses a problem of the specialist for the consideration of specialists. The centenary number summarizes admirably the accomplishments of the publication during a hundred years of its existence. The American Psychiatric Association is congratulated on the completion of its first century of activity and on the excellence of its official publication.

POSTWAR PROGRAMS OF CHILD SECURITY

The size of the future population of the United States and the birth rate after the war are problems of much concern. The subject was included in a round table discussion on population trends and postwar policy.¹ Support and security for children as the best means of encouraging an increased birth rate quickly became the core of the discussion. Existing sources of support and security for children, it was stated, could be classified under three general categories: (1) the family budget, (2) direct financial assistance to families and (3) service furnished from the public exchequer. A "mother's wage" to be paid for rearing children, beginning with \$15 a month for one child and rising to \$100 a month for five children on a nationwide scale, it was emphasized, would cost more than six billion dollars. The "security planners" try to find in cash the answer to all of humanity's problems. They listen with reluctance to the disadvantages resulting from a procedure that would make government stand in loco parentis to all the children. Physicians, with their biologic background, insist that programs recognize the qualitative factor as well as the purely quantitative factors involved in security. An increased birth rate at the moron level would doubtless be a costly program.

1. Kiser, Clyde V.: Implications of Population Trends for Postwar Policy, *Milbank Memorial Fund Quarterly* 22:111 (April) 1944.

POLIOMYELITIS ELECTROMICROGRAPHS

Attempts to demonstrate poliomyelitis virus by means of an electron microscope have been reported by Melnick¹ of the Section of Preventive Medicine, Yale University. By means of differential ultracentrifugation a macromolecular fraction can be isolated from the stools of normal children and of patients with poliomyelitis.² These giant molecules are not sedimented at 18,000 revolutions per minute for twenty minutes but are thrown down at 39,000 revolutions per minute for sixty minutes. When obtained from normal stools, this sediment is not pathogenic for rhesus monkeys. In sediments obtained from poliomyelitis patients the electron microscope reveals the presence of various types of essentially spherical particles varying from 10 to 100 millimicrons in diameter, together with rod shaped (or threadlike) particles 15 to 35 millimicrons in width and 250 millimicrons in length. Rod shaped particles of the same size are found much less frequently in nonpoliomyelitic stools. Similar threadlike particles are also found in the stools of Java monkeys before infection with poliomyelitis virus, with a considerable increase in the number of these threads after intracerebral inoculation. Threadlike particles also are seen in macromolecular sediments from the intestinal contents of Swiss albino mice, known to be intestinal carriers of mouse encephalomyelitis.³ Melnick's results have been confirmed (or anticipated) by Swedish investigators,⁴ who not only demonstrated threadlike particles in poliomyelitic stools but were able to demonstrate the same structures in purified preparations from human poliomyelitic spinal cords and from murine encephalomyelitic brains. Relationship of these threadlike particles to the virus of poliomyelitis is difficult to determine at the present time. According to Melnick's present working hypothesis these minute rods are the virus of poliomyelitis, with nonpathogenic mutants occasionally found in the intestinal contents of normal persons. Thus far the serologic specificity of these macromolecular rods has not been reported.

SAFE PRACTICES FOR USING COM- BUSTIBLE ANESTHETICS

Combustible anesthetics are employed almost constantly in operating rooms. A few serious accidents from explosion or fire have occurred. The National Fire Protection Association¹ has recently issued an official report on recommended safe practices for the use of combustible anesthetics in operating rooms. Included are discussions on mixtures of complex gases, electrical systems, electrostatic spark discharges, hazardous locations, ventilation, and storage and handling of gases. These recommendations have resulted from extensive investigation of the problems and should receive careful study by all who are responsible for installations in operating rooms and the procedures associated with the administration of anesthesia.

1. Melnick, J. L.: *J. Immunol.* 48:25 (Jan.) 1944.

2. Melnick, J. L.: *J. Exper. Med.* 77:195, 1943.

3. Theiler, M., and Gard, S.: *J. Exper. Med.* 72:79, 1940.

4. Tiselius, A., and Gard, S.: Purification of Poliomyelitis Virus, Uppsala, Almqvist and Wiksells Boktryckeri, A.-B., 1943.

1. Quarterly of the National Fire Protection Association 37:74 (April) 1944.

MEDICINE AND THE WAR

NAVY

MEDICAL AUDIOVISUAL EDUCATION IN THE U. S. NAVY

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There is a tendency—well nigh universal but particularly well developed among doctors—to obscure one's meaning by choosing polysyllabic Greek or Latin words in place of the simple, homely Anglo-Saxon synonyms. I would therefore like to have you think with me for a few minutes, not about "audiovisual education" but about "medical teaching aids," their development and their use in military and civilian life.

War has brought home to us many truths, and one in particular has been impressed on us—the art is long, the occasion instant. We have found that modern war can be waged only by skilled, trained men. Too well we know that it takes time to produce such men—to shape their minds, to guide their hands in the technics of the arts and sciences so that each individual acts for the best interests of his country and of humankind. Such guidance is in the broad sense education, which is said to reach its highest form when the skilled instructor is on one end of a log, an attentive student on the other.

Unfortunately, this favorable situation is not universally existent today. In time of war there develops a scarcity both of logs and of teachers, and there press on us also the strategic limitations of time. Particularly are these factors potent in the military medical scene.

There is no scarcity, however, so far as pupils or needs are concerned. Consider, for a moment, the health and medical indoctrination and training burden the Navy must successfully carry today:

First, every man and woman in the Navy and in the Marines, afloat and ashore, must follow a productive and understandable regimen of personal hygiene.

Second, every man jack must possess a working knowledge and practical ability in the fundamentals, at least, of first aid. Manifestly, the teacher-log-student relationship must be somewhat altered when the class comprises more than two million persons. Yet such mass educational technics as may be applied must to a considerable measure be personalized in their effect.

Third, keeping in step with the growth of our seven ocean Navy, there has been a tremendous expansion of its Medical Department. Today, in fact, the Medical Department is larger than the prewar Navy in its entirety. Obviously, this has meant a tremendous increment in ancillary medical personnel, especially the hospital corps. Here the task has been that of taking completely untrained youths and turning them into men and women capable not only of assisting medical offi-

cers under organized ship and hospital conditions, but also of functioning not infrequently completely "on their own" aboard small craft, with invasion forces and so on.

The average time now allotted to that training is nine weeks. This includes six weeks in hospital corps school and three weeks in hospital wards. To take a boy from high school, farm or factory and give him training equal to that of a graduate nurse in nine weeks is impossible, but it has to be done or at least approximated.

Finally, as the bulk of our medical officers, including myself, have come from civilian professional ranks we have been faced with the necessity of learning the specialized art of military medicine.

But the technology of war finds a partner in the healing arts which takes scientific advances in stride. As our bombers carry ever heavier loads higher and farther, the flight surgeon raises the threshold of man's ability to carry through such missions. As our submarines prowl ever closer to the enemy ports, their "clean sweep" reflects the medical department's care in crew selection, hygiene, diet and working environment. Obviously, these and the multitude of other new and developing problems dictate a continuing, aggressive "postgraduate" training of each and every medical officer, be he surgeon or internist, authority or general practitioner.

Patently, every good device and technic must needs be utilized to aid in the training of a total Navy personnel fit to fight and fit to win. However, in the consideration of medical teaching aids the emphasis should be placed on the term aids, for the purpose is not to supplant but to supplement the work of the teacher.

While medical teaching aids embrace a wide and interlocking variety of devices, ranging from the simple blackboard sketch, the printed chart, the lantern slide to the sound-color-motion picture, I shall consider here only those of a more advanced audiovisual character. And, perhaps rather than attempting a didactic exposition of what such an audiovisual device is, I can best describe by citing examples in terms of the aforementioned problems.

Personal hygiene is the first line of defense in the carrying out of the Navy Medical Department's mission "to keep as many men at as many guns as many days as possible." The health of the Navy as a fighting entity is partially an individual responsibility, dependent on every man's obeying the basic laws of personal hygiene. The several films on this subject which have been produced by the Navy serve as a focal point of a continuing effort to inculcate knowledge of the rules of personal hygiene and to indoctrinate every man and woman in the Navy to the point where he or she obeys automatically the basic precepts of bodily cleanliness, exercise, sleep, care of the teeth, nutrition and reporting for medical care at the first intimation of illness.

It is not alone facts, however, which produce such results. It has been found in practice that holding equal importance with the fact—the "what to do"—is the "why." And even in such mundane matters as personal hygiene it has been found to add to the

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effectiveness of the health training effort to appeal to the men as shipmates, to draw on the spirit of cohesiveness which counts for so much in the fighting team and to build a belief and a feeling of security in the ability of the Medical Department to hold up its end.

The educational approach to the problem of venereal disease is a prime example of the role of motion pictures in health indoctrination and a specially pertinent case in point when it becomes necessary to go beyond the facts to produce a desired result. The straightforward facts of syphilis, gonorrhea and chancroid as diseases need to be highlighted; and the deeply misunderstood facts of sex hygiene must be clarified. But although lack of knowledge may be the basic cause of many cases of venereal disease, it is not by any means the only cause.

Many a man who knows the basic technics necessary to avoid venereal disease nonetheless falls a victim to it. Avoidance and prevention of venereal disease—and all that it implies—involves a complexity of factors environmental and within the man. By and large, these factors are outside the control of the Navy, for they bear on the man from nonnaval sources and during liberty hours. Prevention of venereal casualties, therefore, is largely in the hands of the individual sailor or marine, and it becomes one of the functions of audiovisual education to attempt to bring to his consciousness, both intellectually and emotionally, the peculiar role which he plays, how his role affects the Navy as a whole and how his role affects his personal life and his future. Adult restrained sexual behavior can be taught—and must be taught—if our civilization is to endure in full vigor.

Our experience suggests that motion pictures can further proper emotional conditioning—or they can help destroy it. I believe that psychologically we have in the motion picture a most powerful tool, and that it can be and that it will be used to help better the behavior patterns of all of us. We are a part of all that we see; all that we see is some part of us. The average American spends a good many hours each month looking at motion pictures. It seems doubtful that all of these films are pure opium to his senses. Witness—as only one example—our habits of dress and style, largely “made in Hollywood.”

Another formidable all-Navy training task is the teaching of first aid. Six motion pictures and a set of sound slide films have been made specifically for Navy personnel. Every one in the Navy must be able to give elementary first aid. Because professional medical care is not immediately available in all the watertight compartments of a fighting ship, the sailor himself must know the simple rules for the arrest of hemorrhage, dressing of wounds, splinting of fractures and safe transportation of the injured.

Those who go down to the sea must know how to give artificial respiration. To train over two million men in less than two years even in the most simple arts of first aid has proved a tremendous task which is never done. Many a holder of a Purple Heart is thankful his buddy saw and studied the technics of first aid with the benefit of the close-ups of a motion picture.

Beyond first aid and personal hygiene must always stand the professional medical organization. In the training of the basic echelons of the Medical Department lies a major field of action for audiovisual education.

Medical professional training of enlisted personnel—the hospital corps—is accomplished by a combination of intensive didactic courses in hospital corps schools and by practical hospital apprenticeships. Time severely limits both types of activity. The “learn by doing” technic is compressed to its limits. It is here that motion pictures enter and make possible basic instruction in technics and give as well a certain over-all concept immeasurably valuable and necessary to the intelligent student.

The Bureau of Medicine and Surgery is at present making a series of films under the general title “Care of Sick and Injured by Hospital Corpsmen.” Each film in the series is a short (ten to twenty minute) but clear exposition of some basic nursing procedure, including how to take a blood pressure, bathing the bed patient, how to take and record temperature, pulse and respiration, how to do surgical dressings in the ward, how to recognize and care for neuropsychiatric patients, and isolation nursing technics for contagious patients. The list is being extended because the films are proving, in practice, to be extremely valuable. I would expect that civilian nursing instructors will find them most useful when they can be made available, post bellum.

Motion pictures are playing a modest but definite role in the training of our medical officers. As a first step we have reviewed all available medical motion pictures and will continue to review current productions with a view to making available all films which will add to the professional information of the medical corps. Beyond this we have undertaken to produce motion pictures on topics of special importance to the Navy at war. Films on emergency amputation, on the use of skeletal fixation in fractures, on war injuries of the head, on the use of serum albumin and dried plasma, have been or are being made. A film on “Clinical Malaria” is complete and should prove of real value in giving medical officers a basic indoctrination and attitude toward this the most important of all the infectious diseases.

In time of war the trend of medical activity is of necessity largely shaped by the character of military operations. In times past, however, reports of conditions at the front not only were substantially delayed but had to come in words, occasionally illuminated by still photographs. Today it is possible to report from the battle areas in terms of color motion photographs the actual conditions under which medicine and surgery must be practiced. The implications are far reaching, and in order to realize some of them, at least, the Medical Department of the Navy has activated four production units for medical motion picture photography. Each unit is equipped to take color motion picture films and stills of professional quality. Two units are located at large naval hospitals within the continental limits of the United States and two are overseas, one in the Atlantic theater of operations and one in the Pacific.

Documentary films and still pictures of the treatment of casualties from the moment of injury to eventual return to duty—followed step by step from the first aid battle station to the sick bay, to the hospital ship or base hospital to the States—are now being made. All the multitudinous activities of the Medical Department of the Navy are subject to recording on film, not only for historical purposes, but also for the immediate information of medical units in action and to serve as the nucleus for many instruction films.

I trust it would not be out of order at this point to insert a few miscellaneous remarks about instructional sound-on-film motion pictures, with particular reference to their use by orthopedic surgeons.

When one listens to the radio or to a lecturer who is not illustrating his talk, only the sense of hearing is involved. One's eyes may in fact prove a distracting influence, and many persons find that attention to the matter in hand demands that their eyes be closed and visual impressions reduced to a minimum. Unfortunately, the run-of-the-mine lecturer's style and delivery is likely to make the closed-eyes technic somewhat dangerous.

The man who is learning by reading or by looking at a silent motion picture or other graphic presentation, on the contrary, finds his attention distracted by extraneous sounds. Further, even when illustrations are used with the textual matter, their time-space relationship is such that close integration is virtually impossible.

But those who make entertainment films, and more recently those who make instructional films, have found that audience interest is highest and complete attention is most easily obtained if sight and sound are synchronized to complement each other. Learning by hearing and learning by seeing are interlocked in time and space. The listener hears and sees the subject as it is unfolded; there is no competition between stimuli for the center of consciousness. The only escape from participation in such teaching is to walk out.

Effective instructional films of high quality are neither cheap nor easy to produce. All of us know how many hours of work go into a good illustrated lecture (but let me hasten to say that similarity between a good instructional film and an illustrated lecture is largely coincidental). Multiply such efforts tenfold, even a hundredfold, and one can gain some conception of the amount of preliminary preparation required before a single camera can grind. Specific attention must be given to a wide variety of elements: What is the film's mission? To whom is it directed? By whom will it be used? How does it fit into the training or informational plan? What is the specific content? What production technics are indicated (such as live sound photography, animation, color)?

These basic decisions reached, and an action outline of the proposed film carefully prepared, the next step becomes the preparation of a detailed shooting script. This is a task requiring training and experience and a certain talent that can translate into clear, concise language both the graphic (or visual) and the verbal (sound) content of the proposed film in such a manner as to result in the ultimate creation of the desired result after the photographers, actors, soundmen and other technicians have brought their efforts to bear. In short, it is distinctly an exception to find a good teaching film that has not first been born on paper, after a prolonged period of labor on the part of technical experts and an experienced medical script writer.

As one who has been through this rather debilitating process a fair number of times recently, I would say this—with the hope of saving some one from a heart-rending experience: Beware of taking a camera and trying to film an instructional picture without first writing a script and reviewing the practical elements of the problem. Delay, frustration, failure and an unwarranted prejudice against films as teaching aids are more than likely to result from shooting "off the

cuff." With all due respect to my colleagues' abilities, it is a fact that, while many physicians are good amateur photographers, only rarely do they even approach true professional photographic ability. Just as it takes years to acquire surgical technical skill, so it takes comparable time to become a first rate professional motion picture photographer, producer, director or script writer. These are special fields of special skills. The surgeon who is making teaching films should demand that his technicians possess such skills.

Let us suppose that a script has been prepared and that all the scenes called for have been photographed. The last stage in film production has not yet been reached. The cutting room floor has not only been the last resting place of many a promising actor's face, but also has been (or should have been) the interring ground of many an ill thought out medical instructional film. After cutting and editing come the final rewriting of the narrative, the recording of the sound track and, finally, production of the combined sound on film print. All of these processes demand particular abilities and special equipment. And the net result is that production of good teaching films is time, energy and money consuming.

Production costs run from two to twenty thousand dollars per reel, perhaps an average of eight or ten thousand dollars for each ten minutes of screen time. Yet a film on venereal disease which costs, let us say, \$30,000 is seen by two million or more men at a per capita cost of 1.5 cents. If a film on the management of war injuries of the head—costing perhaps \$15,000—leads to the saving of even one American sailor's life, it is worth every cent it cost, and more.

Those of us who teach orthopedic surgery are becoming more and more aware of the value of instructional motion picture films. If, for example, we are teaching students the analysis of gaits, with motion pictures we can show examples of all the characteristic gaits, the muscular weakness, the nerve or joint involvement and so on. Using clinical cases such a demonstration would be most difficult if not impossible to arrange and could not be easily repeated. One properly made film on this subject could be utilized by all medical schools and in many hospitals where postgraduate intern instruction is being carried on.

In conclusion, I would like to bring to attention as succinctly as possible the following points:

Although physicians have made and may well continue to make many amateur or semiprofessional motion picture films, there is an unfilled and pressing need for basic teaching (sound motion picture) films of the highest professional quality.

The value of such films in undergraduate and postgraduate teaching cannot be overestimated. Osler himself could not in an hour's clinical lecture indoctrinate a class of medical students in the protean aspects of typhoid or syphilis as well as a good teaching film could do it.

Osler, alas, is no longer available except in a textbook form. Good films on these and all the other medical subjects which students must learn can be and will be made available in the future.

How is that to be done? Government sponsored agencies may be forced to assume the burden, but a larger part of the task rightfully belongs to nongovernment institutions, particularly medical schools and teaching hospitals. Consider this possibility for a moment: If each medical school produced only one

good teaching film every year—pooling resources and avoiding duplication of effort—we would very soon have a valuable teaching library of medical films. The prerequisites for such a happy situation are an interest and will for the task plus cooperative, intelligent planning, plus the basic financial means. The Academy

of Orthopaedic Surgeons numbers in its membership teachers in all the accredited medical schools. They can exert, if they choose, sufficient effort to influence favorably the course of professional education. Cooperation, vision and leadership are required to initiate such a program. I leave the challenge with you.

ARMY

MEDICAL-SURGICAL CONFERENCE AT TORNEY GENERAL HOSPITAL

A medical-surgical conference was recently held at the Torney General Hospital, Palm Springs, Calif., which was attended by 105 medical corps officers in the Southern California area to discuss wartime problems of their profession and exchange ideas on most recent methods of treatment. The conference was the first of its kind to be held in the Ninth Service Command. Capt. E. M. Papper, chief of anesthesiology at Torney General Hospital, presented a paper on "Anesthesia for the Burned Patient." Capt. John A. Hookey, dermatologist of Torney General Hospital, who recently returned from the Southwest Pacific theater of combat, estimated that at least 50 per cent of their hospital admissions were patients with skin diseases and that 25 per cent of soldiers evacuated from that area to the United States presented dermatologic problems. Dr. John Wilson of Los Angeles, civilian consultant in orthopedic surgery of the Ninth Service Command, Lieut. Comdr. Harry Macey, Norco Naval Hospital at Corona, and Major Donald B. Slocum, chief of the orthopedic section of Torney General Hospital, participated in the presentation of fractures, simple and compound. Major F. M. Willett, chief of the medical service at the Station Hospital, March Field, discussed coccidioidomycosis. Present concepts of virus disease with the possibility of post-war vaccine for poliomyelitis were discussed by Major E. F. Pearson of the 22d General Hospital. Capt. John R. Upton of the Station Hospital, Yuma Army Air Field, in presenting his paper on "Blood Banks and Blood Plasma," advocated the establishment of nonprofit blood banks with voluntary donations as a postwar contribution to American medicine.

Other papers of notable importance in their respective fields were "The Present Status of Induced Fever Therapy" by Major E. M. Honke, chief of the urologic section at Torney; "Experiences with Excision of Pilonidal Cysts and Primary Closure," by Major Hall Seely, chief of general surgery, Station Hospital, Santa Ana Army Air Base; Clinical Pathological Conference, two sessions, Lieut. Col. Hans F. Smetana, chief of laboratory service at Torney; "Pilonidal Cysts at March Field," Major M. E. Pickworth, chief of surgical service at March Field; "Penicillin and Clinical Demonstration of Its Use at Torney General Hospital," by Major Philip B. Davis, penicillin officer; "Effects of Heat on the Human Organism," Capt. I. R. Gold, 98th Evacuation Hospital, and "Coronary Occlusion," Major R. A. Steven, chief of the cardiovascular section at Torney.

Col. A. B. Jones, commanding officer of the hospital, gave the welcoming address, and Col. Maurice A. Selinger, chief of the Medical Service, and Lieut. Col. Meredith G. Beaver, chief of the Surgical Service, presided as chairman. Report of successful treatment methods now in practice throughout the Ninth Service Command was given by Col. John B. Flick, surgical consultant for the command.

Capt. Waltman Walters, chief of surgical service of the Noreo Naval Hospital, Capt. Samuel D. Daniels of the Medical Staff of Torney and Lieut. Joe H. Jewitt of the urologic section of Torney led the open discussion periods.

ARMY NURSE CORPS

The War Department recently announced that Major Gen. Norman T. Kirk, Surgeon General of the Army, has authorized full time employment in military hospitals throughout the nation of certified graduates of Volunteer Nurse's Aides classes sponsored by the American Red Cross. This new group will be known as "Army Nurse's Aides" and will have uniforms and

insignia of their own. To qualify for appointment as such an aide the applicant must have been certified as having done 150 hours in the accredited American Red Cross classes. It is also necessary to have indefinite leave of absence from the Volunteer Nurse's Aide Corps of the American Red Cross. Col. Florence A. Blanchfield, superintendent of the Army Nurse Corps, stated that the addition of these trained civilian employees will help the over-all nursing situation. Some of the duties of the Army Nurse's Aides will be to make beds, give baths, take temperatures, pulse and respiration, help to apply casts and slings, assist with unsterile dressing, give evening and morning care, accompany visiting nurses, serve in casualty stations and first aid posts and do their part in evacuations.

Employing certified volunteers on a full time basis will be left to the discretion of the commanding officers of hospital installations. Establishment of the Army Nurse's Aides will not eliminate the volunteer on a part time basis who is still a member of the American Red Cross Volunteer Nurse's Aide Corps. The full time employee will be placed on a United States Civil Service status and live in the quarters provided by the hospital at which she is stationed.

In addition to living expenses and laundry, the Army Nurse's Aide will receive \$75 a month. The aide will provide her own uniform, a white blouse and skirt, with a pinafore of blue and white stripes. She will wear on the sleeve of her blouse a blue circle with a white center having a red embroidered caduceus over which will be the words "Army Nurse's Aide." A smaller circle without the lettering will be on her white cap.

President Roosevelt has signed an executive order setting the stipend of senior cadet nurses in government hospitals at \$60 a month. The Army Nurse Corps will assign the cadets to thirty general and station hospitals. Plans call for detail of 50 students to each hospital for six month tours of instruction, but entrance of students will be effected at semimonthly intervals to avoid handling of large numbers of incoming and outgoing senior cadets at any one time. A director and assistant director of cadets has been designated at each hospital which will receive the students to supervise the senior cadets.

ARMY AWARDS AND COMMENDATIONS

Lieutenant Colonel Garfield G. Duncan

Lieut. Col. Garfield G. Duncan, formerly of Philadelphia, has been awarded the Legion of Merit. The citation accompanying the award read "By his professional skill and devotion to duty in the performance of outstanding services in the Southwest Pacific Area from Aug. 28, 1943 to Jan. 7, 1944 he made an important contribution to the prosecution of the war in that theater." Dr. Duncan graduated from McGill University Faculty of Medicine, Montreal, in 1923 and entered the service Jan. 6, 1942.

Captain Eugene Moskowitz

Captain Moskowitz, formerly of Mount Vernon, N. Y., was recently awarded the Soldier's Medal for "courage . . . with utter disregard for personal safety" in proceeding through a severe snowstorm by air to perform an emergency operation on an enlisted man, thereby saving his life. The award was made by Brig. Gen. James A. O'Connor of the Northwest Service Command. Dr. Moskowitz graduated from the University of Basel Medical Faculty, Switzerland, in 1937, entered the service June 19, 1941 and is now serving as chief of the orthopedic service at a station hospital somewhere in the Alaskan theater.

Captain Milton Drexler

A recent announcement by the War Department states that Capt. Milton Drexler, formerly of New York City, has been awarded the Legion of Merit. The citation accompanying the award read "Serving as surgeon of an infantry battalion engaged in operations near Salamaua, New Guinea, from July 16 to Sept. 12, 1943 he conducted his medical section with outstanding efficiency and worked long hours with great fidelity. During a rapidly changing tactical situation and in terrain presenting unusually difficult aspects he quickly established medical aid stations in locations best suited to serve the sick and wounded. On several occasions he went under enemy fire to forward perimeters to treat wounded men who could not immediately be evacuated. When not actually engaged in caring for the wounded, he instructed troops in the importance of camp sanitation and by this means greatly reduced the rate of sickness. His gallant conduct during this period was an inspiration to others, and his exceptional services were a substantial contribution to the welfare of our troops." Dr. Drexler graduated from the University of Bern, Switzerland, in 1937 and entered the service June 26, 1941.

Captain Mark D. Holcomb

The Legion of Merit award was recently bestowed on Capt. Mark D. Holcomb, formerly of Whitefish, Mont. The citation accompanying the award read "As assistant regimental surgeon during the Sanananda, New Guinea, operations he volunteered for and successfully completed from Jan. 14 to 18, 1943 a hazardous and difficult journey through heavy jungle terrain and over dangerous waters to procure and deliver vitally needed medical supplies. On several occasions during the delivery of the supplies and while assisting in surgical operations and medi-

cal care of troops he was subjected to intense enemy fire. During his return trip from the advanced area he treated and aided in carrying a wounded soldier although twice pinned down by enemy fire. His conspicuous service, tireless activity and unremitting devotion to duty made an important contribution to the morale and welfare of our troops." Dr. Holcomb graduated from the University of Louisville School of Medicine in 1936 and entered the service Sept. 16, 1940.

Captain Ormand C. Julian

The Soldier's Medal was recently awarded to Capt. Ormand C. Julian, formerly of Chicago. According to the citation accompanying the award, Dr. Julian displayed heroism in participating in a "difficult and hazardous trek into the jungle to rescue a survivor of a plane crash" between Sept. 25 and Oct. 25, 1943. Dr. Julian graduated from the University of Chicago School of Medicine in 1937. He entered the service Sept. 1, 1942 and since Sept. 6, 1943 has been serving as a surgeon with the Medical Corps attached to the ATC in the China-Burma-India theater.

Captain Nicholas Lentini

Capt. Nicholas Lentini, formerly of Cheboygan, Mich., and now stationed in England, has been commended by his commanding general for saving the lives of a number of workmen trapped in a tunnel. At the risk of his own life he organized a party of men from his detachment and led them into the tunnel and administered treatment that revived the injured, saving their lives. His own commanding officer added his congratulations also on Dr. Lentini's leadership, ability and actions as reflecting great credit on his courage. Dr. Lentini graduated from the University of Michigan Medical School, Ann Arbor, in 1939 and entered the service in January 1943.

MISCELLANEOUS**MEDICAL JOURNALS MICROFILMED FOR CHINA**

Eighty-four medical and nursing journals, microfilmed in their entirety on publication and air mailed to China, are the sole sources of modern medical practices and developments for the Emergency Medical Service Training School at Tung-an, in Hunan Province. The journals are microfilmed by the American Bureau for Medical Aid to China, a participating agency of United China Relief, which is supported by contributions through the National War Fund (46 Cedar Street, New York 5). Fourteen copies of each journal are made.

Specialized medical books for the use of doctors and nurses going to China from this country are also being microfilmed by the American Bureau for Medical Aid to China. Before the microfilming of these journals was undertaken, only those techniques used by doctors in the first world war were taught at the training school at Tung-an. Thirty-four rolls of film were recently taken to China by Dr. C. K. Chu, director of the National Institute of Health. The films consisted of such diverse subjects as nutrition, the cultivation and use of the soybean, animal diseases and husbandry, child care and medical research.

SYMPOSIUM ON WAR MEDICINE

Harofe Haivri (the Hebrew Medical Journal) devotes its two volumes for the year 1943 to a symposium on war medicine. Some of the topics are "The Treatment of Gunshot Wounds of the Head and Brain During the Present War," by Dr. Leo M. Davidoff; "Newer Conceptions of the Treatment of Burns," by Dr. Jesse Bullock and Dr. C. L. Fox Jr., and "Shock Syndrome and Its Treatment," by Dr. S. Standard. Bertlia S. Schoolman, in an article on "Hadassah's Contribution to the War Effort," makes the statement that the Hadassah Medical Organization took steps to mobilize and coordinate the health facilities of Palestine on the outbreak of the war in September 1939. The Medical Center of Hadassah, we are told, is the crowning achievement of thirty years of health pioneering in Palestine. Today it assumes an important role in the medical

plans of the armed forces in the Near East as well as in the civilian life of the country. Since 1939 Hadassah has cooperated with the medical military forces stationed in Palestine and the Near East. Of particular interest to them have been the special courses and clinical conferences on tropical and subtropical diseases, war surgery, typhus and malnutrition. Simultaneous with its function of rendering medical service to the civilian population and to the armed forces, the Rothschild-Hadassah University Hospital continues to make contributions also in the fields of teaching and research. An important field of activity through which Hadassah aids the War effort is the Malaria Control Service. The work is carried on under the direction of Prof. I. J. Kligler, director of the department of hygiene of the Hebrew University. According to him, twenty years of malaria control have rendered Palestine the only country in this part of the world in which this infectious disease is of minor significance as a factor in troop morbidity.

U. S. CADET NURSE CORPS

The U. S. Public Health Service, Division of Nurse Education, Washington, D. C., recently announced the appointment of Miss Ruth Sleeper as special consultant in the Division of Nurse Education. Miss Sleeper, on leave of absence from her position as assistant to the director of the Massachusetts General Hospital School of Nursing, Boston, will make a month's study of schools of nursing in South Carolina. She was invited to South Carolina to advise on plans for wartime expansion and the strengthening of educational plans for facilities to meet the urgent need for new student nurses. Schools throughout the state are helping to meet this need through participation in the U. S. Cadet Nurse Corps program, administered by the U. S. Public Health Service. Much of Miss Sleeper's time will be spent at the University of South Carolina at Columbia, assisting in developing proposed plans for a new school of nursing. As chairman of the Curriculum Committee of the National League of Nursing Education, Miss Sleeper is well qualified to advise in curricular planning.

SIGNING-ON EXAMINATIONS OF MERCHANT SEAMEN EXTENDED

In a recent announcement by the War Shipping Administration it was stated that the medical program calling for signing-on examinations of merchant seamen will have been extended to nineteen major United States ports by the end of June. Operation of the medical examination program is designed to discover acute surgical cases and communicable diseases and by prompt treatment to increase the efficiency of the Merchant Marine. The aim of the War Shipping Administration is to keep every man possible on the job. In such a military strategic industry, with an already limited manpower supply, medical officials of WSA consider it imperative that the services of every possible merchant seaman be fully utilized. Recently, out of 200 men found with chronic diseases, 50 were at sea within a week after a newly discovered medical treatment was made available for them. Others were physically fit for assignment to duty soon afterward. As chronic diseases are brought to light by the medical examinations, provisions are made for the treatment of the men in Marine hospitals. Should the signing-on examinations uncover more cases than can be cared for adequately in marine hospitals and other facilities of the United States Public Health Service, WSA said it would lend its support to plans now under consideration for providing additional hospital facilities for merchant seamen. Action is now pending that would provide new Marine hospitals in Florida and southern California.

Interest in the health of merchant seamen does not end with their signing-on examinations. Medical care aboard ship is being provided by WSA as rapidly as men can be trained in practical medicine. Men with a junior assistant purser-pharmacist's mate rating are being graduated from the U. S. Maritime Service Hospital Corps School at Sheepshead Bay, N. Y., at the rate of 50 a week. One out of every four merchant ships now carries a man with such a rating.

Presence of trained medical personnel aboard a merchant ship makes available to merchant seamen the latest in modern treatment, such as plasma, sulfonamide drugs and penicillin.

CASUALTIES OF U. S. ARMED FORCES SINCE OUTBREAK OF WAR

The Office of War Information reported on April 27 the number of casualties of the United States armed forces from the outbreak of the war, totaling 192,836. This total, combining the latest available War and Navy Department reports, includes 44,497 dead, 72,030 wounded, 41,923 missing and 34,386 prisoners of war. Of the prisoners of war, 1,904 have been reported by the enemy as having died in prison camps, mostly in Japanese occupied territory.

The War Department report (as of April 15) lists army casualties totaling 148,425. Of this number 25,582 were killed, 60,166 wounded, 32,727 missing and 29,950 prisoners of war. Of the wounded 33,077 have returned to active duty or have been released from the hospital. The casualties include 12,500 Philippine Scouts. Of these, 469 were killed and 747 wounded. The others are assumed to be prisoners of war.

The Navy Department (as of April 27, 1944) shows casualties whose next of kin have been notified totaling 44,411, made up of 18,915 dead, 11,864 wounded, 9,196 missing and 4,436 prisoners of war.

SCHOLARSHIPS FOR POST- GRADUATE STUDY

The Division of Nurse Education, U. S. Public Health Service, Washington, D. C., in a recent announcement states that scholarships for full time or part time postgraduate study are provided under the Bolton act for graduate nurses who qualify. These scholarships are designed to increase the number of graduate nurses prepared for critical nursing positions which require special preparation. They offer carefully selected graduate nurses splendid opportunities to prepare for key positions in

fields where definite shortages now exist. Federal funds have been available under the Bolton act for five general types of scholarship programs: (1) well established postgraduate programs, (2) modified postgraduate programs, (3) part time courses, (4) postgraduate programs designed to prepare midwives, nurse anesthetists and expert clinical nurse practitioners, (5) supplemental clinical courses.

Scholarships cover tuition and fees for full time and part time students. Maintenance also is provided in some instances. State and local Procurement and Assignment committees have been advised to classify as essential nurses who are preparing for essential nursing education positions. To obtain a postgraduate scholarship, please follow this procedure: 1. Apply directly to the institution offering the program of courses you have selected. 2. Have your director of nurses follow up your application with a statement that she wishes you to have this special preparation. 3. If you plan to transfer to another critical position at the conclusion of your studies, request the director of that agency or institution to inform the college that the advanced program for which you are applying will better equip you for the new post.

An additional type of scholarship program consisting of workshops, institutes and short concentrated courses is now available in institutions which have presented an approved plan (THE JOURNAL, May 13, p. 155).

LIBERTY SHIP NAMED IN HONOR OF DR. JAMES D. TRASK

Dr. James D. Trask, formerly associate professor of pediatrics at the Yale University School of Medicine, New Haven, Conn., was posthumously honored recently when a Liberty ship was named in his honor and launched at the Bethlehem-Fairfield shipyards in Baltimore. The ship was christened by his widow. Dr. Trask died in Chicago May 24, 1942, while working for an army medical commission under an appointment as consultant to the Secretary of War and became internationally known for his work on infantile paralysis. Dr. Trask and Dr. John R. Paul of Yale University, his associate in the study of this disease, received the first grant made by the Committee on Virus Research of the National Foundation after it was organized in 1938. Dr. Trask graduated from Cornell University Medical College, New York, in 1917. He served in World War I from May 1918 to December 1919. At the meeting of the American College of Physicians in April 1942 he received jointly with Dr. Paul the John Phillips Memorial Medal.

ARMY-NAVY E AWARDED TO OPTICAL RESEARCH, INC.

Optical Research, Inc., Long Island City, N. Y., was recently awarded the Army-Navy E in recognition of the company's war production achievements. In 1941 Optical Research, Inc., initiated plans for large scale output of precision instruments to fit war needs. The company built its own time saving devices so successfully that during the first nine months of 1943 individual employee production was increased almost 1,000 per cent.

COMMUNITIES IN NEED OF PHYSICIANS

The following communities have applied to the U. S. Public Health Service for federal assistance in obtaining the services of physicians under the recently enacted law authorizing an appropriation of \$200,000 for the relocation of physicians:

Pineville (Mecklenburg County), North Carolina.
Star (Montgomery County), North Carolina.
Waxhaw (Union County), North Carolina.
Glenrock (Converse County), Wyoming.
Leola (McPherson County), South Dakota.
Faith (Meade County), South Dakota.
Vale (Malheur County), Oregon.
McEwen (Humphreys County), Tennessee.
Tribune (Greeley County), Kansas.

Physicians interested in locating in these communities should communicate with the Surgeon General, United States Public Health Service, Washington (Bethesda Station), D. C.

ORGANIZATION SECTION

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—H. R. 4519 has passed the House and Senate, and has been signed by the President, appropriating \$1,000,000 for use by the Administrator of Veterans' Affairs to provide seeing-eye or guide dogs for blind veterans who are entitled to disability compensation under laws administered by the Veterans' Administrator, and to pay all necessary traveling expenses to and from their homes and incurred in becoming adjusted to the seeing-eye dog. The appropriation may be used, too, to provide such veterans with mechanical electronic equipment for aiding them in overcoming the handicap of blindness. H. R. 4624 has passed the House, without amendment, a bill to consolidate and revise the laws relating to the Public Health Service. As passed by the House, the bill retains the provision that no regulation relating to qualifications for appointment of medical officers or employees shall give a preference to any school of medicine and the provision provid-

ing that for the duration of the present war and for six months thereafter graduates of reputable osteopathic colleges shall be eligible for appointment as reserve officers in the service.

Bills Introduced.—S. 1944, introduced by Senator Wagner, New York, and H. R. 4729, introduced by Representative O'Toole, New York, propose an appropriation of \$500,000 annually for use by the Librarian of Congress in providing books published either in raised characters, or sound-reproduction records, or in any other form, for the use of the adult blind residents of the United States, including the territories and insular possessions. Of this appropriation, not exceeding \$100,000, it is contemplated, will be expended for books in raised characters and not exceeding \$400,000 for sound-reproduction records and for the maintenance and replacement of the government-owned reproducers for sound-reproduction records for the blind.

WOMAN'S AUXILIARY

Georgia

Atlanta was the first city in the country to establish a city-wide registry of blood types. Mrs. Edgar H. Greene conceived the idea in 1942 while president of the Woman's Auxiliary to the Fulton County Medical Society of having the organization take up the work. At present there are four laboratories in Atlanta, all staffed by auxiliary members who have been especially trained in the technic of blood typing. A registry will be started soon in Winston-Salem. Dr. Ben Hill Clifton spoke at a recent meeting of the Fulton County Medical Society.

Indiana

Mrs. A. B. Richter, Indianapolis, has sent a copy of Meredith Nicholson's fine article on Federalized Medicine to each of Indiana's senators and to the eleven congressmen. In part he says "The idea of socialized medicine impresses me only by its mischievousness. One of its worst features, apart from the blow to the individual's right to choose his own medical attendant, is the lessening of the doctor's incentive to carry on his studies beyond the point where he may be licensed to practice. . . . I consider the Murray-Wagner-Dingell legislation one of the worst measures proposed in recent congresses.

Michigan

Officers of the Michigan Auxiliary and the county presidents were invited by the Michigan Medical Society to attend a "School of Information" in Detroit recently. The school gave information about legislation and trends toward medical regimentation.

The Saginaw County Medical Auxiliary held a dinner meeting with the doctors. The auxiliary members sewed during January for the Children's Home.

New Jersey

The third state meeting of the New Jersey auxiliary executive board was held in Trenton recently.

The Camden County auxiliary met at the home of Mrs. H. W. Jack at Haddonfield. After the election of officers Mrs. Max Weiman reviewed "A Surgeon's World."

The Essex County auxiliary and the Contemporary Club of Newark held a joint Health Day meeting recently. Hudson County auxiliary is planning a card party, the funds of which will be given to war purposes. Middlesex County auxiliary held a meeting recently at the home of Mrs. M. S. Brody in Highland Park. After the meeting there was an exhibit of arts

and hobbies of members. Dr. William Kvaraceus spoke on "Child Delinquency" at a recent meeting of the Passaic County auxiliary.

New York

At a recent meeting of the executive board of the New York auxiliary in New York City, about thirty women attended the dinner and business session. Interesting meetings were reported by eight county auxiliaries: Albany, Broome, Columbia, Fulton, Montgomery, Nassau, Rensselaer and Warren. At a recent meeting of the Rensselaer auxiliary Mrs. Rachael Newlin, superintendent of the Day Home, spoke on "The Effects of War on Children." The New York State annual convention will be held at the Hotel Pennsylvania in New York City, May 8-12.

Wisconsin

Members of the Milwaukee auxiliary were entertained by the Milwaukee Dental Auxiliary at a luncheon January 19. Professor Riordan of Marquette University spoke on "Forty Thousand Miles in Forty Minutes." Adjustable bed trays were donated to Pinchurst Sanatorium by the Rock County Medical Auxiliary, and proceeds from the annual holiday ball sponsored by the Marinette auxiliary were used at the Marinette Recreational Center.

OFFICIAL NOTES

DOCTORS AT WAR

Radio broadcasts of Doctors at War by the American Medical Association in cooperation with the National Broadcasting Company and the Medical Departments of the United States Army and the United States Navy are on the air each Saturday (3:30 Central war time, 2:30 Mountain war time and 1:30 Pacific war time).

The titles and guest speakers for the next three programs are as follows:

- June 3. "Medicine in the Front Lines."
Speaker, Major Gen. George F. Lull, U. S. Army, Deputy Surgeon General, Washington, D. C.
- June 10. "Frontiers of Medicine."
Speaker, Morris Fishbein, M.D., Editor of *THE JOURNAL* and of *Hygieia*.
- June 17. "Mechanized Dandruff."
Speaker, Brig. Gen. Stanhope Bayne-Jones, Deputy Chief, Preventive Medicine Service, War Department, Washington, D. C.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

DISTRICT OF COLUMBIA

Death from Spotted Fever.—The death from Rocky Mountain spotted fever of Major Alexander Read Moir, chief of the Royal Air Force Transport Command group attached to the British Air Commission, occurred in Washington, May 16, according to the *Washington Post*. Major Moir, who died in Walter Reed General Hospital, was infected while removing ticks from his pet cocker spaniel in his home at Arlington, Va. He was said to be ill at home for several days before reporting to the hospital.

FLORIDA

Dr. Pearson Named Editor of State Journal.—Dr. Homer L. Pearson Jr., 416 Ingram Building, Miami 32, was appointed editor of the *Journal of the Florida Medical Association* at the annual meeting of the state medical association in St. Petersburg, April 14. He succeeds Dr. Shaler A. Richardson, Jacksonville. Stewart G. Thompson, D.P.H., Jacksonville, will continue as business manager of the journal.

Personal.—Dr. Walter C. Jones Jr., Miami, has been named a member of the merit system council of the Florida State Board of Health and Crippled Children's Commission for a three year term.—Dr. Hart E. Van Riper has been named medical director of James M. Jackson Memorial Hospital, Miami, succeeding Dr. Charles L. Clay.—Dr. Herbert W. Virgin Jr., Miami, who has been inactive for about two years on account of illness, has resumed the practice of medicine.—Dr. Joseph B. Kollar, Vero Beach, has been named a member of the state board of medical examiners to succeed Dr. James E. Crump, Winter Haven, whose term expired.

ILLINOIS

State Heart Association Incorporated.—The Illinois Heart Association has been granted a charter under the "general not for profit corporation act" of Illinois. The association was organized "to stimulate interest and encourage investigation in the social, medical, industrial and economic problems connected with heart disease, to develop cardiac clinics and other facilities for the diagnosis and treatment of heart disease and to correlate and standardize the work of various agencies interested in the prevention and relief of heart disease throughout the state of Illinois, and sponsor local societies." At its first meeting in Chicago, May 16, Dr. Harry A. Durkin, Peoria, was chosen president and Dr. Frank Denteen, Blomington, vice president. Drs. Don C. Sutton, Chicago, and Luther J. Osgood, Waukegan, are secretary and treasurer, respectively. Mrs. Ruth Pearce McEldowney, executive secretary of the Chicago Heart Association, will serve the new group in a similar capacity. For the present the office of the local society at 203 North Wabash Avenue, Chicago 1, will be used for the headquarters of the newly formed state group. The latter supplants an old state society which had been inactive for a number of years.

Chicago

Scientists Oppose Ordinance Repeal at City Pound.—That the repeal, April 12, of a section of the municipal code providing for the disposition of unclaimed impounded dogs will prove to be a public health hazard is evidenced in a report recently issued to the press by a group of scientists including members of the faculties at medical schools in Chicago. Indicating that the housing of dogs at the pound is overcrowded, the report emphasizes that the housing of unclaimed impounded dogs under such conditions for a five day period instead of the heretofore authorized three to one day period will prove a public health hazard. The present facilities at the shelter are inadequate to house the number of dogs now picked up if all the animals are now held five days before being disposed of. Licensed or otherwise desirable dogs have always been kept for a minimum of five days and frequently longer. The three day interval for the other animals will keep the number of dogs impounded up to the 1943 level and prevent overcrowding in the shelter. In 1943 15,463, in addition to 250 other animals, were removed from

the streets by the staff of the municipal animal shelter under the jurisdiction of the department of police. About one third of the impounded dogs, or 4,451, attacked and bit a corresponding number of persons. In addition 5,869 citizens were bitten by dogs not apprehended by the police. Of these citizens 1,284 were supplied with antirabic treatment consisting of fourteen to twenty-one injections by the board of health alone. This number comprised those bitten by dogs unavailable for examination and observation or dogs known or suspected to be rabid. Ninety-four Chicago dogs out of 460 examined by the laboratories of the board of health were found to have rabies. One human being died from rabies in 1943, 1 in 1939 and 6 in 1936. Under city ordinance unclaimed impounded dogs may be distributed to the institutions of medical education and research in Chicago. About three fourths of the dogs received from the shelter are used for instruction and research. In an appeal to rescind the recent action of the council, the report points out that the former treatment of unclaimed impounded dogs is the only solution of the problem until the facilities of the shelter can be enlarged and is necessary for the preservation of the health and safety of citizens as well as for the proper education of medical and dental officers and civilian physicians and dentists.

IOWA

Dr. Carter Dies.—Charles H. Carter, D.Sc., professor of bacteriology, Parsons College, Fairfield, chairman of the Iowa Board of Examiners in the Basic Sciences, died suddenly, May 3. Dr. Carter was also secretary-treasurer of the American Association of Basic Science Boards, which was organized last February. He had been a member of the state basic science board since its organization six years ago.

KENTUCKY

Changes in Health Officers.—Dr. Henry Van D. Stewart, formerly of Little Rock, Ark., was recently appointed in charge of the Perry County Department of Health and will be located in Hazard.—Dr. Paul A. Wright, Jackson, has been named health officer of Fulton County, succeeding Dr. Jesse M. Dishman, who was recently transferred to Benton.

LOUISIANA

State Medical Election.—Dr. Rhett G. McMahon, Baton Rouge, was named president-elect of the Louisiana State Medical Society during its recent annual meeting in New Orleans and Dr. Valentine H. Fuchs, New Orleans, was installed as president. Other officers include Drs. Daniel J. Murphy, New Orleans, Jason P. Sanders, Shreveport, and Phillip H. Jones Jr., New Orleans, vice presidents. Dr. Paul T. Talbot, New Orleans, is secretary.

MAINE

State Medical Meeting.—The ninety-first annual session of the Maine Medical Association will be held at the Samoset Hotel, Rockland, June 23-27, under the presidency of Dr. Oscar F. Larson, Machias. Among the speakers will be:

Dr. Malcolm T. MacEachern, Chicago, *Postwar Problems—Providing Adequate Opportunities for Graduate Medical Education.*
Dr. Joseph C. Doane, Philadelphia, *Intravascular Thrombosis and Embolism.*
Dr. Joseph E. Porter, Portland, *The Significance of the Rh Factor in Blood.*
Dr. Paul Dudley White, Boston, *Some Observations on the Treatment of Heart Disease.*
Surgeon General Thomas Parran of the U. S. Public Health Service (subject not announced).
Capt. David W. Lyon Jr. (MC), *Recent Developments in the Treatment of War Casualties.*
Dr. Adam P. Leighton, Portland, *A Medical Metamorphosis.*

Guest speakers at dinner sessions will include Dr. Frank H. Lahey, Boston, on "The Management of the Surgical Lesions of the Terminal Ileum, Colon and Rectum," and Dr. Morris Fishbein, Editor of *THE JOURNAL*, on "Changes in Medical Practice and the Wagner-Murray-Dingell Bill."

MASSACHUSETTS

Personal.—Dr. Ferdinand Haase Jr. has been named assistant director of the Massachusetts General Hospital, Boston, effective April 1.—Dr. Ira W. Richardson, Wakefield, has been appointed medical examiner of the Third Middlesex District, succeeding the late Dr. Roscoe D. Perley, Melrose.

Community Council Created to Expand Facilities.—The Greater Boston Community Council was recently organized to establish planning for social work and health service on a metropolitan basis. It will include the Boston Council of Social Agencies, which includes the Boston Health League and the United Settlements of Greater Boston, the Hospital

Council of Boston and the Greater Boston Nursing Council for War Service. The absorption of these units into one council will serve to unify the activities of all member agencies.

MICHIGAN

Condemnation Proceedings for Medical Center Site.—The board of education has approved the recommendation that condemnation proceedings begin for the area to house the first unit of the Wayne University Medical Science Center, Detroit, including the two blocks lying between Farnsworth and Theodore streets and running from Beaubien to Hastings as well as a third block bounded by Frederick, St. Antoine, Farnsworth and Beaubien streets. The three blocks are to be used for a site for the Wayne University-County Hospital. It was agreed that the action "be based on the understanding that none of the buildings in the condemned area will be demolished or tenants moved from them until the war is ended or until such time as the housing situation is relieved." The entire district bounded by Warren, Brush, Hastings and Ferry streets, with a gross area of 53 acres, was previously earmarked for the development of the center.

MISSISSIPPI

Personal.—Dr. James P. Ward, Greenville, director of the Washington County Health Department, has resigned to accept a position with the Standard Oil Company as physician on the Island of Aruba, a Dutch colony, 20 miles off the coast of Venezuela, it is reported. —Dr. Hosea F. Magee has been named superintendent in charge of the Mississippi State Charity Hospital, Jackson. —Dr. Charles B. Mitchell has been appointed superintendent of the Mississippi State Hospital at Whitfield.

State Medical Election.—Dr. James K. Avent, Grenada, was chosen president-elect of the Mississippi State Medical Association during its annual meeting in Jackson, May 10, and Dr. Benjamin L. Crawford, Tylertown, was inducted into the presidency. Other officers include Drs. Thomas M. Dye, Clarksdale, secretary, and John F. Lucas, Greenwood, treasurer. A resolution was adopted at the meeting favoring the establishment of a four year school of medicine in the state. The organization of a "half-century club," composed of physicians of the state who have completed fifty years or more in the practice of medicine, was effected during the session. Newspapers reported that about sixty physicians are eligible for membership in the group.

NEW HAMPSHIRE

State Medical Election.—Dr. Fred Fernald, Nottingham, was elected president of the New Hampshire Medical Society at its annual meeting in Manchester, May 16. Dr. John F. Gile, Hanover, was named vice president and Dr. Carleton R. Metcalf, Concord, was reelected secretary-treasurer.

NEW YORK

Physician Wills Body to Hospital.—Dr. Ethel L. Leonard, resident physician in charge of the anesthesia at the Staten Island Hospital, Staten Island, who was fatally injured when struck by a bus April 11, requested in her will that her body be given to the New York Polyclinic Medical School and Hospital for medical research. Newspapers report that the offer was rejected.

Personal.—Dr. Otto Pfaff was honored recently by the Madison County Medical Society and its woman's auxiliary on the occasion of his eighty-first birthday. Dr. Pfaff has practiced medicine for fifty-six years, fifty-four of which have been spent in Oneida. —John R. Murlin, Ph.D., professor of physiology and director of the department of vital economics, University of Rochester, was given a dinner, April 29, in recognition of his seventieth birthday.

Mental Hygiene Promotions.—Recent changes in the state department of mental hygiene include the promotion of Dr. Newton J. T. Bigelow, Brentwood, assistant commissioner, as deputy commissioner; Dr. Arthur W. Pense, Wassaic, acting medical inspector, as assistant commissioner; Dr. Joseph L. Camp, Thiells, assistant director at Letchworth Village, as acting medical inspector; Paul O. Komora, Albany, assistant secretary, as administrative secretary, and Benjamin Malzberg, Ph.D., Albany, assistant director of statistics, as director of the bureau of statistics. Dr. Alfred M. Stanley, Orangeburg, acting medical inspector, was named director of the Harlem Valley State Hospital, Wingdale. Dr. Milton M. Grover, assistant director of the Hudson River State Hospital, Poughkeepsie, has been named acting medical inspector

of the department. Dr. John R. Ross has been reinstated as director of the Hudson River State Hospital, a position he left in August 1943 to serve as superintendent of the State Hospital for Mental Diseases, Howard, R. I. On April 11 Governor Thomas E. Dewey signed eleven mental hygiene bills, representing in part the program developed by the Moreland Commission, which made a survey of the state's institutions (*THE JOURNAL*, June 12, 1943, p. 456). According to the New York *Herald Tribune* the measures deal with boards of visitors, accounts and records of hospitals, licenses of examiners and psychologists and records of patients.

New York City

Hospital Service Includes Care for Ward Patients.—On May 12 the Associated Hospital Service of New York started the sale of group contracts providing care in hospital wards at a cost of 56 cents a month for individuals and \$1.32 for an entire family, newspapers reported. The new plan, which will be sold only on a pay roll deduction basis, is designed for persons with low income who cannot afford the service's regular Blue Cross Plan, providing hospital care in semiprivate rooms. It was stated that the new contract will reach a substantial number of persons who are normally forced to accept hospital care in wards on a charity basis.

Physician Presents Collection to Public Library.—Dr. Albert A. Berg recently gave two rare volumes and manuscripts to the New York Public Library to be added to the collection of great works of English literature which he had already given to the library in memory of his brother, Dr. Henry W. Berg, who died in 1938. According to the New York *Times* the two volumes just given to the library were issued in 1480 by William Caxton, England's first printer. The manuscripts are by Samuel Taylor Coleridge, some of them unpublished notebooks. The *Times* stated that these will be of great value in biographic and literary studies.

Memorial to Dr. Ewing.—A fund of \$150,000 will be subscribed to Memorial Hospital for the Treatment of Cancer and Allied Diseases as a memorial to the late Dr. James Ewing, identified with the hospital for many years. Income from the fund will be used to support undergraduate and graduate instruction for medical students at Cornell University Medical College and at the hospital, to finance at least two lectures annually on recent advances in neoplastic diseases and to support such special study as may seem advisable to a supervisory committee. Dr. Elise D. S. L'Esperance, member of the board of managers and director of the Strang Prevention Clinic, is chairman of the fund committee.

OKLAHOMA

State Medical Election.—Dr. Victor C. Tisdal, Elk City, was chosen president-elect of the Oklahoma State Medical Association during its annual meeting in Tulsa, April 24-26, and Dr. Charles R. Rountree, Oklahoma City, was inducted into the presidency. Dr. Frank W. Boadway, Ardmore, was named vice president. Dr. Lewis J. Moorman, Oklahoma City, is secretary. The 1945 session will be held in Oklahoma City. A resolution was adopted at the meeting authorizing the committee on public policy to work toward the presentation of a law creating a state board of health for the state of Oklahoma. Under the present setup the state commissioner of health is appointed by the governor. The proposed resolution would create a board of health of from five to nine members who would be responsible for the appointment of the state health officer and the administrative policies of the state health department. The constitution of the state provides for this type of board, but the legislation affirming it has never been created.

PENNSYLVANIA

Program to Reduce Impaired Hearing.—A plan has been launched in Pennsylvania to obtain aid for the deaf which, if successful, will be used as a basis for similar plans in other states. Diagnostic clinics are being organized, especially for the rural communities, where special study and advice can be given for difficult or obscure cases. All cases of impaired hearing will be referred to the family physician or otologist. In Philadelphia, special regional clinics will be established in certain Philadelphia hospitals for those who cannot afford the services of private physicians. The program stemmed from the creation of a subcommittee from Pennsylvania by the committee for the conservation of hearing of the American Academy of Ophthalmology and Otolaryngology. According to *Philadelphia Medicine*, the committee, which is composed of Dr. James A. Babbitt, Philadelphia, Dr. Walter

Hughson, Abington, Dr. George M. Coates, Philadelphia, and Harold Westlake, Ph.D., State College, was instructed to prepare and put in operation a statewide plan for aid to the deaf.

Philadelphia

The Da Costa Oration.—Capt. Lewis Kracer Ferguson (MC) delivered the Da Costa Oration of the Philadelphia County Medical Society, May 24, on "Surgical Experiences in Battle Casualties."

Phi Lambda Kappa Honor Lecture.—Dr. Philip Levine, Newark, N. J., will deliver the annual Phi Lambda Kappa Honor Lecture at the Hospital of the University of Pennsylvania, June 16, on "The Clinical Importance of the Rh Factor."

Dr. Arnov Named Director of Research at Sharp & Dohme.—Dr. Leslie Earle Arnov, for two years director of the department of biochemistry of the medical and research laboratories of Sharp & Dohme, has been appointed director of research to succeed Dr. Arnold D. Welch, who resigned to become professor of pharmacology at Western Reserve University School of Medicine, Cleveland (THE JOURNAL, May 13, p. 16). Dr. Arnov received his degree in pharmacy at the University of Florida in 1930, his doctor of philosophy degree at the University of Minnesota in 1934 and his doctor of medicine degree at the University of Minnesota Medical School, Minneapolis, in 1940.

Pittsburgh

Memorial Lectures.—The Pittsburgh Academy of Medicine sponsored memorial lectures for the late Drs. Charles H. and Karl A. Emmerling and Robert W. Stewart at a meeting, May 16. Dr. Robert E. Gross, Boston, gave the combined memorial lectures on "Surgical Treatment of Patent Ductus Arteriosus."

Society News.—On May 9 the Allegheny County Medical Society held its annual meeting at the Hotel William Penn. The speakers were Dr. William McKee German, Cincinnati, on "Tropical Diseases: Distribution, Transmission and Prevalence" and Dr. William H. Kneeder, Philadelphia, "Some Aspects of Malaria." Dr. Walter H. Judd, U. S. Congressman from Minnesota, addressed the banquet on "Medicine in Politics."

New Fellowship in Industrial Medicine.—The James S. Kemper Foundation has given \$2,500 to the department of industrial hygiene, University of Pittsburgh School of Medicine, to establish a fellowship in industrial medicine. The purpose of the fellowship is to make available to a qualified physician the opportunity to pursue graduate work in preparation for a career in industrial medicine. Additional information may be obtained from Dr. William S. McElroy, dean of the university.

RHODE ISLAND

Training School for Cancer.—Rhode Island's first training school for cancer was held at the Rhode Island Hospital, Providence, recently, attended by 150 women. Among the speakers was Clarence C. Little, Sc.D., managing director of the American Society for the Control of Cancer. The training schools are part of an activity of the Women's Field Army of the American Society for the Control of Cancer.

Perpetuate Memory of Charles Chapin.—The Providence City Council recently adopted an ordinance to create a standing committee to cooperate with the Rhode Island Medical Society in perpetuating the memory of Dr. Charles V. Chapin, superintendent of health in Providence for forty-eight years. Dr. Chapin died in 1941. According to the *Rhode Island Medical Journal* Dr. Chapin established the first municipal laboratory in the country. He is credited with the first experiments in filtering water by mechanical filtration and for making Providence the first city to discontinue fumigation as a form of terminal disinfection in the prophylaxis of contagious disease. The state medical society named its annual oration in his honor.

WEST VIRGINIA

State Medical Election.—Dr. Thomas L. Harris, Parkersburg, was elected president of the West Virginia State Medical Association at its May meeting in Wheeling and will take office January 1. Dr. Robert J. Reed Jr., Wheeling, is currently president. Other officers chosen at the recent meeting, who will also take office January 1, include Drs. Mayes B. Williams, Wheeling, and Lynwood G. Houser, Beckley, vice presidents. Mr. Charles Lively, Charleston, is executive secretary of the association. Clarksburg was chosen as the place for the 1945 meeting, the time to be decided later. Included among the recommendations approved at the session

was one favoring the establishment of a national department of health with an administrative officer holding the degree of doctor of medicine and occupying a seat in the President's cabinet. Another recommendation favored the enactment of legislation providing for the appointment and tenure of office of the state health commissioner subject to the approval of the council of the state medical association, for the medical personnel of the Public Health Council to be chosen from a panel recommended by the council, and for the appointment of medical superintendents of all state eleemosynary institutions to be subject to the approval of the Public Health Council and the council of the state medical association. Another recommendation urged the merger of all city health departments with the health department of the county in which the unit is located. The program to conserve hearing among school children, initiated by the American Academy of Ophthalmology and Otolaryngology, was endorsed at the meeting. The house of delegates authorized any component society to appoint a committee to take over at the end of the war, with the approval of the government, the emergency medical defense equipment of the Office of Civilian Defense now located in various areas in West Virginia.

WISCONSIN

Memorial to Dr. Gramling.—The Medical Society of Milwaukee County has created the Anthony J. Gramling Memorial essay contest in honor of the late Captain Gramling, who was killed in action in Italy, January 10. The award will take the form of a first prize of \$100 and a gold medal and a second prize of \$50 and a silver medal, to be presented to the winners of an annual contest to be inaugurated at the end of the war.

GENERAL

National Gastroenterological Association.—The ninth annual convention of the National Gastroenterological Association will be held at the Hotel Astor, New York, June 7, under the presidency of Dr. Anthony Bassler, New York. Among the speakers will be:

Dr. Benjamin Jablons, New York, Gastric Symptoms in Hypertension and Renal Disease.
Major Arthur A. Kirchner, M. C., Gastrointestinal Disturbances in the Soldier.
Dr. Sander Lorand, New York, Emotional Factors and Spastic Colitis.
Dr. Isidore Snapper, New York, Postwar Malaria Problems.
Drs. Linn J. Boyd and David Schwimmer, New York, Liver Function Tests: A Study in 600 Cases.

Federation for Clinical Research.—The second annual meeting of the American Federation for Clinical Research will be held at the Stevens Hotel, Chicago, June 12, under the presidency of Dr. J. Allen Kennedy, Nashville, Tenn. Included among the speakers will be:

Dr. Robert H. Williams, Boston, The Pharmacology of Thiouracil.
Dr. Abraham O. Wilensky, New York, Chemotherapy in the Treatment of Acute Hematogenous Osteomyelitis.
Drs. Richard S. Gubner and Murrill M. Szucs, Brooklyn, Provocative Prolongation of the PR Interval in Rheumatic Fever.
Drs. Conrad R. Lam and Roy D. McClure, Detroit, Penicillin as an Adjunct in Skin Grafting of Severe Burns.
Drs. J. Warrick Thomas and Vernon C. Wiksten, Cleveland, Allergy in Relation to the Genitourinary Tract.

Directory of Medical Specialists.—The third edition of the Directory of Medical Specialists listing names and biographic data of all men certified by the fifteen American boards is to be published early in 1945. Collection of biographic data of the diplomates certified since the 1942 edition and revision of the older listings are now going forward rapidly. Diplomates are requested to make prompt return of notices regarding their biographies as soon as possible after receiving the proper forms from the publication office soon to be mailed to them. The directory is published under the direction of the Advisory Board for Medical Specialties by the A. N. Marquis Company, 919 North Michigan Avenue, Chicago 11. Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6, is the directing editor.

Meeting of Allergists.—The first annual meeting of the American College of Allergists will be held at the Palmer House, Chicago, June 10-11, under the presidency of Dr. French K. Hansel, St. Louis. Among the speakers will be:

Dr. Charles F. Cole, Rochester, Minn., Physiologic Aspects of Allergy.
Jacques J. Brontebrenner, Ph.D., St. Louis, The Mechanism of Desensitization.
Dr. Mary E. H. Loveless, New York, Immunologic Studies of Hay Fever.
Elvin C. Stakman, Ph.D., St. Paul, Minn., The Aerobiologic Phase of Allergy.

Dr. Sanford B. Hooker, Boston, the guest of honor, will discuss "Qualitative Differences in Canine Dander." One feature of the meeting will be a symposium on service allergy. On Friday June 9 an organization meeting of a section of veterinary allergists will be held.

Society for Investigative Dermatology.—The sixth annual meeting of the Society for Investigative Dermatology will be held at the Stevens Hotel, Chicago, June 13, under the presidency of Dr. Frederick D. Weidman, Philadelphia, who will discuss "The Past, Present and Future in Investigative Dermatology in the United States." Among the speakers on the program will be:

- Edmund V. Cowdry, Ph.D., St. Louis, An Integrative Study of Epiderma Methylcholanthrene Carcinogenesis.
- Lieut. Eugene S. Berenson, M. C., The Effects of Central Nervous System Lesions on Cutaneous Reactions.
- Drs. Naomi M. Kanof and Adolph Rostenberg Jr., Washington, D. C., A Study of the Chemical Specificity of the Eczematous Sensitization.
- Dr. Ernest A. Strakosch, Chicago, Clinical and Laboratory Investigation of 350 Cases of Chancroid.
- Dr. Robert E. Stowell, St. Louis, Photometric Histochemical Determination of Substances in the Skin; Measurements of Thymonucleic Acid.

Society News.—The American College of Radiology will hold a councilors luncheon June 13 at the Stevens Hotel, Chicago, the annual meeting to be held June 14, and the annual banquet closing the session that evening.—The annual meeting of the American Medical Women's Association will be held June 10-11 at the Blackstone Hotel, Chicago, under the presidency of Dr. Zoe A. Johnston, Pittsburgh. Dr. Alice Stone Woolley, Poughkeepsie, N. Y., president-elect of the association, as the principal speaker, will discuss "A Rendezvous with the Future." A feature of the meeting will be a tea Sunday afternoon in honor of Dr. Esther C. P. Lovejoy, New York, in recognition of her twenty-five years' service as chairman of the American Women's Hospital Committee, a section of the American Medical Women's Association. General headquarters during June 12-16 will be room 18, fourth floor, Stevens Hotel.

Broncho-Esophagological Association Meeting.—The twenty-sixth annual meeting of the American Broncho-Esophagological Association will be held at the Waldorf-Astoria Hotel, New York, June 6, under the presidency of Dr. Robert L. Moorhead, Brooklyn. Among the speakers will be:

- Drs. Gabriel Tucker and Joseph P. Atkins, Philadelphia, Recent Trends in the Bronchologic Use of Chemotherapeutic and Biotherapeutic Agents.
- Drs. Herman J. Moersch and Stuart W. Harrington, Rochester, Minn., Benign Tumor of the Esophagus: Report of 11 Cases.
- Dr. Louis H. Clerf, Philadelphia, Osteoma of Trachea.
- Dr. Frederick T. Hill, Waterville, Me., Adenoma of the Bronchus, Treated by Coagulation.
- Drs. Paul H. Holinger, Chicago, H. James Hara, Hinsdale, Ill., and Edwin F. Hirsch, Chicago, Bronchogenic Carcinoma: An Analysis of 175 Proved Cases.
- Drs. Chevalier L. Jackson and Charles M. Morris, Philadelphia, Anatomy of the Bronchial Tree and Lungs, with a Simple Nomenclature.

American Diabetes Association.—The fourth annual meeting of the American Diabetes Association will be held at the Hotel Sherman, Chicago, June 11, under the presidency of Dr. Joseph T. Beardwood Jr., Philadelphia. Among the speakers will be:

- Dr. Franklin B. Peck, Indianapolis, The Newer Insulin Mixtures—A Follow-Up Study.
- Dr. Martin G. Goldner, Chicago, Alloxan Diabetes.
- Major Samuel S. Altshuler, M. C., Diabetics Serving in the Armed Forces.
- Dr. Elmer L. Sevringhaus, Madison, Wis., Glucose Tolerance Tests in the Diagnosis of Diabetes and Hyperinsulinism.
- Dr. F. M. Simmons Patterson, Abington, Pa., Refrigeration in Diabetic Surgery.
- Dr. Joseph H. Barach, Pittsburgh, The Importance of Nutrition in the Care of the Diabetic Child.

Col. Leonard G. Rowntree, M. C., will deliver the Banting Memorial Lecture on "Experiences of the Selective Service System with Glycosuria." Dr. Beardwood will deliver his presidential address at the annual banquet, and Dr. Frederick W. W. Hipwell, Toronto, Canada, will discuss "Personal Reminiscences of Frederick G. Banting."

Meeting of Otologists.—The seventy-seventh annual meeting of the American Otological Society will be held at the Waldorf-Astoria Hotel, New York, June 5-6, under the presidency of Dr. Wesley C. Bowers, New York. Among the speakers will be:

- Dr. Karl O. Lowy, Rochester, N. Y., Functional Studies on Labyrinth Penetration in Animals.
- Lieut. Col. Joseph L. Goldman, M. C., A Comparative Study of Whispered Voice Tests and Audiograms.
- Lieut. Col. Paul A. Campbell, M. C., The Development of Aviation Otology During World War II.
- Willis C. Beasley, Ph.D., Bethesda, Md., The Future of Physical Therapy for the Deafened.
- Dr. Pierre P. Viole, Los Angeles, Experiences in Surgery of the Facial Nerve.

One feature of the program will be a discussion on the rehabilitation of the war deafened with Dr. Gordon Berry, Worcester, Mass., discussing "Vocational Rehabilitation Service"; Capt. Harry P. Schenck (MC), "The Navy"; Lieut. Col. Marion R. Mobley, M. C., "The Army," and Dr. Dean M. Lierle, Iowa City, "The Civilian Otologist."

Association for the Study of Internal Secretions.—The twenty-seventh annual meeting of the Association for the Study of Internal Secretions will be held at the Stevens Hotel, Chicago, June 12-13, under the presidency of Dr. E. Kost Shelton, Los Angeles. Among the speakers will be:

- Dr. Albert Segaloff, Detroit, The Role of the Liver in the Metabolism of Synthetic Estrogens and Proestrogens.
- Dr. Henry S. Guterman, Chicago, A Colorimetric Urine Test for Human Pregnancy.
- Dr. Maurice Fremont-Smith, Boston, The Vaginal Smear in the Diagnosis of Cancer of the Uterus.
- Dr. Willard M. Allen, Ellenmae Viergiver and Dr. Samuel D. Soule, St. Louis, The Excretion of Sodium Pregnanediol Glucuronide in the Urine Following the Oral Administration of Anhydrohydroxyprogesterone and Progesterone to Patients with Secondary Amenorrhea.
- Drs. M. Edward Davis, Chicago, and Arthur A. Hellbaum, Oklahoma City, Observations on the Experimental Use of Gonadotropic Extracts in the Human Female.
- Drs. Willard O. Thompson and Phoebe K. C. Thompson, Chicago, The Role of the Pituitary in Toxic Goiter.
- Oscar Riddle, Ph.D., and Vita M. Rauch, Cold Spring Harbor, N. Y., Action of Estrogen on Plasma Calcium and Endosteal Bone Formation in Parathyroidectomized Pigeons.

A feature of the meeting will be a symposium on thioracil.

American Proctologic Society.—The annual meeting of the American Proctologic Society will be held at the Stevens Hotel in Chicago, June 12, under the presidency of Dr. Homer I. Silvers, Atlantic City, N. J. Among the speakers on the tentative program are:

- Dr. Richard I. Brashear, Columbus, Ohio, Malignancy of the Colon and Rectum.
- Dr. Hugh Beaton, Fort Worth, Texas, Benign Disease of the Colon and Rectum.
- Drs. Harry E. Bacon, William D. Todhunter, and Orrille C. Gass, Philadelphia, The Present Status of the Surgical Treatment of Carcinoma of the Rectum and Sigmoid.
- Dr. Frank H. Lahey, Boston, Lesions of the Terminal Ileum, Colon and Rectum.
- Dr. Percy A. Brooke, Worcester, Mass., Gastrointestinal Bleeding on a Psychic or Emotional Basis Following Minor Surgical Procedures.
- Dr. Marion C. Pruitt, Atlanta, Ga., The Problems Concerned in Decreasing Pain in Anorectal Surgery, with Special Reference to Prolonged Anesthesia with Alcohol.
- Dr. Edward G. Martin, Detroit, Modern Adaptation of the "Sliding Skin Flap" to Pilonidal Cyst, Anal Stricture and Reconstruction of Anal Lining.
- Dr. Victor K. Allen, Tulsa, Okla., The Intersphincteric Hernioplasty of the Prolapsed Rectum.
- Dr. Harry W. Christianson, Minneapolis, Prolapsing Tumors of the Rectum and Sigmoid.

American Gynecological Society.—The sixty-eighth annual session of the American Gynecological Society will be held at the Hotel Hershey, Hershey, Pa., June 19-21, under the presidency of Dr. George W. Kosmak, New York. Among the speakers will be:

- Dr. Leroy A. Calkins, Kansas City, Mo., The Second Stage of Labor—The Descent Phase.
- Dr. Edward C. Hughes, Syracuse, N. Y., The Relationship of Glycogen to Problems of Sterility and Ovarian Life.
- Dr. Roy E. Nicodemus, Danville, Pa., An Analysis of Sterility Studies in the Female.
- Dr. Carl P. Huber, Indianapolis, The Failure of the Conservative Treatment of Eclampsia.
- Dr. Rupert E. Arnell, New Orleans, Management of Eclampsia: Conclusions Based on 142 Consecutive Cases in a Five Year Period Without Maternal Death.
- Dr. Robert L. Faulkner, Cleveland, An Injection Study of the Uterine Blood Vessels.
- Dr. Richard W. TeLinde, Baltimore, The Minimum Histological Changes in Cervical Biopsies to Justify the Diagnosis of Malignancy.
- Dr. Gerald W. Gustafson, Indianapolis, Management of Abruptio Placentae.
- Dr. Nicholson J. Eastman, Baltimore, Sodium Pentothal Anesthesia in Obstetrics: An Analysis of 1,500 Cases.

The Joseph Brettauer Memorial Lecture will be delivered by Dr. Louis Carnac Rivett, London, England, on "Hydrannios."

Society of Clinical Pathologists.—The twenty-third annual meeting and eleventh seminar of the American Society of Clinical Pathologists will be held at the Drake Hotel, Chicago, June 8-11, under the presidency of Dr. Walter S. Thomas, Rochester, N. Y., who will discuss "Avocatus Diaboli." Among the speakers will be:

- William H. Taliaferro, Ph.D., Chicago, Immunity in Malaria.
- Dr. Harry J. Corper and Maurice L. Cohn, Ph.D., Denver, The Biologic Diagnosis of Tuberculosis: Quantitative Animal Evaluation Tests on the Syrian Hamster and the Guinea Pig.
- Drs. Charles Weiss and Frank H. Rodin and Marian C. Shevsky, A.B., San Francisco, Bacteriologic Findings in Infections of the Eye in the San Francisco Bay Region.
- Drs. Sidney C. Madden and George H. Whipple, Rochester, Plasma Proteins and Amino Acids in Disease Therapy.

There will be a demonstration by Dr. Edith L. Potter, Chicago, on "Autopsy Technic on the Newborn" and a round table discussion on "Medical Economics as Related to the Practice of Pathology in the Hospital." At the annual banquet, June 10, Rev. Alphonse M. Schwitalla, S.J., St. Louis, will discuss "The Clinical Pathologist in the Hospital." On Sunday June 11 there will be a seminar on "Pathology of Tropical Diseases" conducted by Col. James E. Ash, curator, Army Medical Museum, Washington, D. C., at which Dr. Israel Davidsohn, Chicago, will be the moderator.

American Therapeutic Society.—The forty-fifth annual meeting of the American Therapeutic Society will be held at the Stevens Hotel, Chicago, June 10, under the presidency of Dr. William V. Watson, Toronto. Included among the speakers will be:

- Dr. George L. Waldbott, Detroit, Hay Fever Treatment During the Season.
Dr. H. Arnold H. McNitt, Washington, D. C., Hypertensive Encephalopathy—A Clinical Consideration.
Dr. Reginald A. Higgins, Port Chester, N. Y., Effect of Ultraviolet Air Sterilization on Incidence of Respiratory Infections in a Children's Institution.
Dr. Charles Rob Tenn., Complication of Rabies Vaccine, Treatment.
Dr. Harry E. Vitamin K Therapy in Menorrhagia.
Major Daniel J. Preston, M. C., Battle Casualties in an Army General Hospital.
Dr. Italo F. Volini, Chicago, The Clinical Use of Sulfamerazine.
Dr. Horton Corwin Hinshaw and William H. Feldman, D.V.M., Rochester, Minn., The Use of Sulfone Drugs in the Treatment of Experimental and Clinical Tuberculosis.
Lieut. Col. Earl R. Denny, M. C., Some Clinical Observations on the Use of Penicillin.
Dr. Willard van Hazel, Chicago, Surgical Treatment of Bronchiectasis.
Capt. Alphonse McMahon (MC) will be the guest speaker at the annual banquet.

Meeting of Ear, Nose and Throat Specialists.—The forty-ninth annual meeting of the American Laryngological, Rhinological and Otolological Society will be held at the Waldorf-Astoria, New York, June 9-10, under the presidency of Dr. H. Marshall Taylor, Jacksonville, Fla. Among the speakers will be:

- Dr. Forrest J. Pinkerton, Honolulu, Hawaii, Experiences in a War Zone Since the "Blitz."
Dr. William J. McNally, Montreal, Quebec, Canada, The Otoliths and the Part They Play in Man.
Dr. Ben R. Dysart, Pasadena, Calif., Diabetic Gangrene Involving the Sinuses.
Dr. Albert C. Furstenberg, Ann Arbor, Mich., Disturbances of the Functions of the Salivary Glands.
Dr. George E. Shambaugh Jr., Chicago, The Comparison of the Hearing Improvement Following the Fenestration Operation and the Hearing Improvement Obtained with a Hearing Aid.
Dr. Edmund Prince Fowler, New York, The Aging Ear.
Capt. Harry P. Schenck (MC), Otolaryngology on the High Seas.
Dr. Walter Hughson, Abington, Pa., Audiometry in the Diagnosis and Treatment of Deafness in Children.
Dr. Ralph A. Fenton, Portland, Ore., Traumatism of the Frontal Sinuses.
Dr. Frederick A. Figi, Rochester, Minn., Cystadenoma of the Larynx; Report of Four Cases.
Dr. Louis H. Clerf, Philadelphia, The Preepiglottic Space, Its Relation to Carcinoma of the Epiglottis.

Association for the Surgery of Trauma.—The American Association for the Surgery of Trauma will hold its fifth annual convention at the Edgewater Beach Hotel, Chicago, June 9-10, under the presidency of Dr. Charles S. Venable, San Antonio, Texas. Included among the speakers will be:

- Dr. Donald W. Gordon Murray, Toronto, The Use of Longitudinal Wires in Bones in the Treatment of Fractures and Dislocations.
Dr. Richey L. Waugh, Boston, Ununited Fractures of the Carpal Scaphoid with a Preliminary Report on the Use of Vitallium Replicas as Replacements After Excision.
Dr. Paul B. Magnuson, Chicago, Intervertebral Disks.
Dr. Walter S. Priest, Chicago, Penicillin Therapy.

Dr. Magnuson will be toastmaster at the annual banquet Friday evening, at which Dr. Loyal Davis, Chicago, will discuss "Experiences in England, Russia and Africa." A feature of the meeting on June 10 will be a military program presented by the following:

- Major William F. Stanek and Captain Wendell G. Peterson, M. C., Compound Fractures Seen in Training.
Major Boardman M. Bosworth, M. C., Treatment of Fractures in the Combat Area.

Col. Augustus Thorndike Jr., M. C., The United States Army's Reconditioning of the War Wounded.

- Major Frank H. Mayfield, M. C., and Capt. Louis Levitch, D. C., Discussion of the Repair of Cranial Defects with Tantalum, Including the Operative Technique and the Procedure of Preparation of the Plate and the Report of 11 Cases.

Major Nerle J. Brown, M. C., Surgery at a Higher Altitude.

Gastroenterological Meeting.—The forty-sixth annual meeting of the American Gastroenterological Association will be held at the Drake Hotel, Chicago, June 12-13, under the presidency of Dr. Sara M. Jordan, Boston. Among the speakers will be:

- Drs. William F. Lipp and Ellenrose H. Eckstein, Buffalo, Clinical Significance of a Palpable Spleen.
Drs. George B. Ensternman and Hamilton Montgomery, Rochester, Minn., Xanthomatous Biliary Cirrhosis.
Egon K. F. Lorenz, Ph.D., and Dr. Harold L. Stewart, National Cancer Institute, Bethesda, Md., Induction of Tumors of the Gastrointestinal Tract by Carcinogenic Hydrocarbons.
Dr. Shields Warren, Boston, Gastritis, Its Relation to Carcinoma.
Dr. Jose Menéndez Ferrós, Havana, Cuba, Electrogastrography in the Diagnosis of Cancer and Ulcer of the Stomach.
Dr. Louis A. Buie, Rochester, Endoscopic Motion Pictures in Colors of the Lesions of the Terminal Bowel.
Capt. Rupert H. Draeger (MC), Blast Injuries as Related to the Alimentary Tract and Gastrointestinal Manifestations of Underwater Blast Injuries.

There will be a symposium on the ulcer problem and a panel discussion on the application of sulfonamides to gastrointestinal disorders. At the annual dinner Joseph P. Kennedy, former ambassador of the United States to the Court of St. James's, will be the principal speaker. On this occasion the Friedenwald Medal will be presented to Drs. Anton J. Carlson and Andrew C. Ivy, emeritus professor of physiology at the University of Chicago School of Medicine and professor of physiology and pharmacology at Northwestern University Medical School, respectively.

The American Urological Association.—The fortieth annual meeting of the American Urological Association will be held at the Hotel Jefferson, St. Louis, June 19-22, under the presidency of Dr. Cyrus E. Burford, St. Louis. Included among the speakers will be:

- Drs. Emerson C. Smith and Lazarus A. Orkin, Montreal, A Statistical and Clinical Study of 471 Congenital Anomalies of the Kidney and Ureter.
Drs. Charles B. Huggins and William W. Scott, Chicago, Cutaneous Ureterostomy with Contralateral Ureteral Ligation.
Dr. Lowrain E. McCrea, Philadelphia, The End Results of Prostatectomy: A Five Year Survey.
Major Arthur H. Milbert, M. C., and Major Isadore Gersh, M. C., Urolithiasis in the Soldier.
Major Lawrence H. Doolittle, M. C., and Capt. Henry B. Marshall, M. C., Penicillin Treatment of Sulfonamide-Resistant Gonorrhea.
Drs. John K. Ormond, Robert M. Cothran and James A. Singiser, Detroit, Undescended Testicle: A Report on a Series of Cases.

On Wednesday Dr. Burford will deliver his presidential address, on "Urologists of the Future." Other speakers will include Hon. Wendell Berge, assistant attorney general of the United States, on "Justice and the Future of Medicine" and Dr. Herman L. Kretschmer, President of the American Medical Association, Chicago, "A Urologist Looks at Changing Trends in Medical Practice." Another feature of the meeting will be a special program Thursday sponsored to promote cordial scientific relationships between urologists in the Americas and presented by representatives of Central and South America; Cuba and Haiti: Drs. Alejandro Palomo, Guatemala; Salvador Ortega, Guatemala; Alfonso Davalos, Quito, Ecuador; Eugenio E. Lins, Rio de Janeiro; Luis Goyanna, Rio de Janeiro, and Luis H. Rodriguez Diaz, Venezuela.

LATIN AMERICA

Health Activities in Latin America.—*Blue Cross Plan in San Juan.*—In the first quarter of 1944, 11,858 persons enrolled in the Blue Cross Plan of Puerto Rico Hospital Service Association. Robert E. Mills, executive director of the Puerto Rico Blue Cross Plan, predicted recently that by the end of the year about 50,000 persons will be enrolled as members.

Physician Builds Hospital with Funds Earned as Singer.—Dr. Ortiz Tirado, who sang for a time over the NBC system in the United States, has constructed a modern orthopedic hospital in Mexico City with funds earned while he was broadcasting. A plaque hangs over the entrance of the hospital carrying the inscription "This hospital was built through funds earned at the following broadcasting stations: . . ." Dr. Tirado sang over the NBC as "Mexico's Ambassador of Song."

Penicillin in Peru.—Dr. Telemaco Battistini, director of the Peruvian National Institute of Hygiene, states that Peru was the first Latin American country to produce and use penicillin, according to the Office of Coordinator of Inter-American Affairs. Dr. Battistini is reported to have said that the first experiments with penicillin were made at the institute of hygiene in August 1942 and that by March 1943 the drug was being used in all the chief hospitals of Lima.

Personal.—Dr. Roberto Mendiola, since 1936 professor of pathologic anatomy at the Facultad de Medicina of the Universidad de Guadalajara, Jalisco, has been named a member of the Academia Mexicana de Cirugia in recognition of his work in pathologic anatomy.—Dr. Ezequiel Martinez-Rivera, secretary of the Puerto Rico Medical Association, left Puerto Rico, May 5, to attend the annual session of the American Medical Association.—Dr. Luis F. Thomen, Ciudad Trujillo, has been appointed undersecretary of state for health and public welfare in the Dominican Republic.

FOREIGN

Penicillin Laboratory in Lisbon.—A laboratory is to be established in Lisbon for the manufacture of penicillin, the *New York Times* reported April 17. It was stated that the unit would be financed by all Portuguese pharmaceutical manufacturers.

Bombay Medical Group Observes Diamond Anniversary.—The Bombay Medical Union observed its "diamond jubilee" February 6. Speakers at the meeting included Dr. Jehangir J. Cursetji, the only surviving founder member. The first meeting was held on Dec. 22, 1883.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 29, 1944.

Penicillin in the Treatment of War Wounds

For the guidance of those concerned in the treatment of battle casualties the Penicillin Clinical Trials Committee of the Medical Research Council has issued a memorandum on the use of penicillin in the treatment of war wounds. The committee consists of leading medical and bacteriologic experts and includes Prof. H. W. Florey, who has done so much to develop the use of penicillin. Penicillin is found to have the three properties of an ideal antiseptic: It inhibits the growth of susceptible bacteria in high dilutions, it has almost no local or systemic toxicity and its action is unimpaired by serum, blood or pus. No other substance possesses these qualities to anything like the same degree, and the results of clinical trials are fully in accord with expectations. Two methods of treatment are possible, according to the memorandum: local application and systemic administration. Locally, penicillin is immensely superior to the sulfonamides; it is a much more potent bacteriostatic agent, it acts efficiently on large as well as on small numbers of bacteria and its action is not inhibited by pus. Systemic treatment consists in injecting a solution intravenously or intramuscularly with the object of maintaining a bacteriostatic concentration in the blood. This may be necessary for extensive and deep seated infections and for septicemia, but under present conditions penicillin should not be used if the responsible organism is susceptible to a sulfonamide, the memorandum states.

The action of penicillin on bacteria is highly selective. Gram positive cocci, clostridia, neisseria and *Corynebacterium diphtheriae* are susceptible. *Proteus*, *Pseudomonas aeruginosa*, the colon-typhoid-dysentery group and the tubercle bacillus are insusceptible. From the point of view of wound treatment the principal pyogenic cocci and the whole of the gas gangrene group are highly susceptible, while all gram negative bacteria except gonococci and meningococci are resistant. The only common wound pathogens among gram negative organisms are *Proteus*, *Pseudomonas aeruginosa* and coliform bacilli. The value of penicillin in various types of wounds and the methods by which it can be combined with surgery have not yet been established, the memorandum says. There is no suggestion that it should be applied as routine treatment in every case or that it should replace sulfonamides, it is added.

Local application of penicillin through a tube inserted into the wound is recommended as the least wasteful method and as giving the best results. The tube should be of narrow bore, so that the syringe for injection can be attached without leakage. The dressing should be applied so that the end of the tube projects through it. In most cases the solution should be injected at twelve hour intervals. Open wounds may be sprayed with the solution, although the use of a powder or cream is generally preferable. In a strength of 1,000 to 5,000 units per cubic centimeter penicillin has been injected into abscess cavities following aspiration of pus. The penicillin may remain active in the abscess cavity for over two days, after which the injection can be repeated.

Penicillin cream may be used for skin infections or surface wounds which cannot be closed, or when the nature of the wound is such that a solution cannot be retained. The cream may be spread on the wound but as a rule is spread on the gauze to be applied. Penicillin powder may be used for wounds which cannot be closed, or it may be applied preparatory to closure, it is stated.

Medical Difficulties of the Yugoslav Patriot Army

The Cairo correspondent of the London *Times* describes in a recent dispatch the primitive conditions of the medical service of the Yugoslav patriot army. Treatment of the wounded is a matter of improvisation, assisted when possible by British supplies and help. One of the few British doctors working with the Yugoslavs, who for military reasons remains anonymous, said during a visit to Cairo that the "hospitals" consisted of beds erected in peasants' cottages, often surrounded by pigs and other domestic animals. Later a hospital consisting of logs was erected in a forest, but supplies were sadly lacking. Operations usually had to be performed without an anesthetic and with no other antiseptic than salt and water. Dressings and bandages were made by the guerillas from old linen and other material. Hacksaws, carpenters' nails and hammers took the place of surgical instruments. Splints were roughly fashioned from planks and pieces of wood. Nevertheless the patients' morale was high, he reported, and when the pain became unendurable they would sing their national songs at the top of their voices. As the patriots had to be continually on the move, the wounded had to make their way as best they could from place to place. Because of deficiency of transportation they had to walk or be left behind. In the latter case, it was reported, the Germans frequently slit their throats. At times, conditions were made easier by the capture of German medical supplies or the arrival of supplies from British or American sources. Recently the undaunted Yugoslav doctors held a medical congress. While the introductory speeches were being made news of a German attack was received, so the whole congress packed up and proceeded to another town. The second sitting was also interrupted, and the congress was continued and concluded in a third town. The Yugoslav doctors complain of the absence of medical journals, which prevents them from keeping up with latest scientific progress. Though untrained, the Yugoslav girls have done valuable work as nurses in unbelievably difficult circumstances, the report concluded.

Patients in Hospital Ship Killed by Germans

Violations of rules of the Geneva Convention, to which Germany is signatory, are well known. A flagrant example is an attack on a plainly marked hospital ship. Rev. Colin Montgomery, brother of General Montgomery, stated at a "salute the soldier" meeting in England that his hospital ship had been attacked by the Germans several times. At the Salerno landing the enemy sank a well known hospital ship, fully lighted, at night. The bomb fell in the operating theater, where a major operation was in progress. All the doctors and most of the nursing staff were killed, and 250 patients lost their lives. It is impossible to mistake a hospital ship, either by day or by night. Nevertheless, the enemy have attacked and sunk many of them.

Tuberculosis an "Injury"

In medicine the distinction between disease and injury seems plain, but in law the contrary has often been true. A police constable is entitled to retire and receive a special pension for life if incapacitated for duty by infirmity of mind or body occasioned by an injury received in executing his duty. Attention has been called to the case of a constable who contracted tuberculosis which he attributed to long hours on duty without regular meals and exposure to cold, wet and physical and mental strain during air raids. On the ground that the risk of tuberculosis is common to mankind and not peculiar to a constable on duty and that injury must be distinguished from disease and must be something which happened at some particular place or time, the police authorities refused to grant the constable a pension. However, a previous decision to the con-

trary was cited by the plaintiff. An anthrax bacillus flew out of a bale of wool into a sorter's eye and fatally infected him. The court decided that this was an "accident" and said that calling the consequences of an accidental injury a disease did not alter the nature of the injury. Adopting this line of argument in the present case, the court decided that the constable had qualified for his pension. "A bacillus causes tuberculosis," said one of the judges, "and medical men speak of a tuberculous lesion; the word lesion means injury." He evidently was not aware that in medicine lesion has a wider significance, though etymologically and in its general use lesion does mean injury.

BRAZIL

(From Our Regular Correspondent)

May 3, 1944.

Iron Content of Water of Anopheline Breeding Places

The valley of the Parahiba River in the state of São Paulo, between Guararema and Queluz, is entirely free from malaria in spite of the relative abundance of anopheline species, which in other places are active agents in the spread of the disease. It is an old belief of the physicians of this district that the cause of this fact is the supposed high iron content of the water of the breeding foci of the region. In previous papers Dr. Ovidio Unti of the Malaria Division of the São Paulo State Department of Health has published the results of several studies he has undertaken to disclose the factors responsible for this so-called anophelism without malaria. One new paper, recently published, deals with the problem of the iron content of the waters of the region. Fonseca and Unti have already demonstrated that the anophelines of the Parahiba Valley are susceptible to experimental and natural infection by *Plasmodium vivax* and *Plasmodium falciparum* in this nonmalarial district and in the heavily malarious littoral of the state as well. From February 1941 to February 1943 more than a hundred samples of water from breeding foci of the region have been studied for the determination of iron content. In the paper the author contrasts these results with those obtained from water samples from the malaria stricken regions of the uplands and of the littoral, as well as from nonmalarial districts of both these regions. The iron content in all these samples of water varied widely, from 0 to 9.6 parts per million, and also in all of them the anopheline larvae could breed freely. Dr. Unti's conclusion is that the iron content of the waters of the Parahiba Valley is not the cause of the absence of malaria in that district, in spite of the existence of potential anopheline vectors.

Quantitative Iodometric Determination of Vitamin C in Citrus Fruits

The quantitative determination of vitamin C in the citrus fruits has been attempted by two main methods—by the use of a standard solution of iodine and employing the 2,6-dichlorophenolindophenol as an indicator of reduction of oxide. The iodometric determination, which is a convenient method when one is dealing with pure solutions of ascorbic acid, has been adapted for the analysis of citrus fruits by Stevens, Tauber and Kleiner, by means of strong acidification of the medium, and elimination of interfering substances. But even this method is not entirely exact for the analysis of citrus fruits, which constitutes an important practical problem. The determination through the use of dichlorophenol as an indicator, according to the technic suggested by Tillmans and Hirsch, is much better for the analysis of the citrus fruits, especially if operated rapidly and in a strongly acid medium (pH 2.5) as recommended by Harris and Ray. As proposed by Ballentine, a solution of potassium iodate may be used instead of the iodine solution, with the advantages of a more stable solution and a more exact

determination. Dr. Gilberto G. Villela of the Oswaldo Cruz Institute, a member of the Committee for the Revision of the Brazilian Pharmacopeia, has just published a paper in which he presents and discusses the results of many quantitative determinations of vitamin C made by him in citrus fruits of Brazil, using the methods referred to. Several quantitative determinations in a pure solution containing 1 mg. of ascorbic acid gave the average result of 0.98 with the iodine solution, 1.03 with the iodate solution and 1.03 with the indophenol method. The iodate method has given satisfactory results, in comparison with the indophenol method, when used to determine the vitamin C content of citrus fruits: the average content of ascorbic acid in milligrams per hundred cubic centimeters was 48.4 with the indophenol method and 48.2 with the iodate method, the average difference being only 0.2. The range of variation of the ascorbic acid content of the fruits, in milligrams per hundred cubic centimeters, was 25.2 and 67.3 for different kinds of lemons, 28.0 and 60.8 for oranges and 32.0 and 59.3 for mandarins. The treatment of the juice of these fruits by ascorbinase has demonstrated that the total amount of substance oxidized by the iodate solution was really vitamin C.

Brief Items

The new directors of the Rio de Janeiro Medical and Surgical Association, recently inaugurated for the year 1944, are Dr. Joaquim Motta, president; Drs. H. Pinheiro Guimarães and A. F. Costa Jr., vice presidents; Drs. Aurelio Monteiro, A. Campos da Paz and Helio Silva, secretaries; Dr. N. Moura Brazil, treasurer, and Drs. Waldemar Carrilho, Gil Ribeiro and Aecio Villares, editors of the *Annals* of the society.

Dr. João de Barros Barreto, director general of the National Department of Health, has been appointed as delegate of Brazil at the fifth Pan American Conference of National Health Directors, which met in Washington April 22-29.

Dr. Ary de Oliveira Lima has been appointed secretary general of health of the Federal District (city of Rio de Janeiro), succeeding Dr. Jesuino de Albuquerque, who has occupied this post since June 1940. The secretary general of health has under him the Department of Hospitals and the Department of Public Health.

Dr. Jorge Doria, surgeon of the Municipal Emergency Hospital, has been appointed director of the Department of Hospitals of Rio de Janeiro.

Dr. Arnaud Tzanck, French dermatologist, has spent a few days in Rio de Janeiro. He has been received by the National Academy of Medicine, where he read a paper on a subject of his specialty.

The University of Rio de Janeiro is now giving two specialized medical courses, one on "Child Neuriatry" under the direction of Prof. A. Borges Fortes and the other on "Neurosurgery" under the direction of Prof. Domingos F. da Costa.

Marriages

JOHN CALVIN BONNER JR., Pacolet, S. C., to Miss Mary Elizabeth Douglas of Charleston in Carlisle Barracks, Pa., April 5.

JAMES LEGRAND MOORE, Raleigh, N. C., to Miss Jean Frances Moon of Williamsport, Pa., May 12.

OTTO L. ZANEK to Miss Josephine Ross, both of Houston, Texas, in Nacogdoches, March 12.

GEORGE BRANCH PATRICK JR., Philadelphia, to Miss Muriel Jones of Stroudsburg, Pa., May 6.

CYRUS C. JOHNSON, Leland, Miss., to Miss Jean Chambless of Montgomery, Ala., recently.

CHARLES W. BEERS to Miss Ruth Cober, both of Muskegon, Mich., April 15.

Deaths

William Spencer Carter, Newton, Mass.; University of Pennsylvania Department of Medicine, Philadelphia, 1890; assistant demonstrator of pathology at his alma mater from 1891 to 1894, assistant professor of comparative physiology from 1894 to 1897 and demonstrator of physiology, 1896-1897; professor of physiology and hygiene at the University of Texas School of Medicine, Galveston, from 1897 to 1922 and dean from 1903 to 1922 and again from 1935 to 1938; in 1922 lent by the University of Texas at the request of the Rockefeller Foundation to the University of the Philippines, where he was associate dean of the medical school; in 1923 as associate director of the Medical Sciences Division of the Rockefeller Foundation, New York, he made a survey of medical education in the Philippines, Australia, South Africa, Java and New Zealand; acting director of the Peking Union Medical College, 1925-1926, on leave by the Rockefeller Foundation, conducting in the latter year survey of medical education in India; in 1934 retired as associate director of the medical sciences division of the Rockefeller Foundation, a position he had resumed in 1927, and returned to the University of Texas School of Medicine as dean; once secretary of the Galveston County Medical Society; a former member of the National Board of Medical Examiners and a member of the American Physiological Society; past president of the Association of American Medical Colleges; received the Boylston prize in 1892 and the Alvarenga prize in 1903; author of "Notes on Pathology and Bacteriology" with David Riesman, 1895, and of "Laboratory Exercises in Physiology," 1916; died May 12, aged 75.

Louis Leroy * Memphis, Tenn.; Medico-Chirurgical College of Philadelphia, 1896; assistant in pathology at his alma mater in 1896; professor of bacteriology and pathology at the Illinois Medical College and Harvey Medical College, Chicago, 1899-1900; professor of bacteriology and pathology at the Vanderbilt University School of Medicine, Nashville, from 1899 to 1905; formerly professor of the principles and practice of medicine and professor of bacteriology at the College of Physicians and Surgeons; professor of medicine at the University of Tennessee College of Medicine; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the American Congress of Tuberculosis; formerly state bacteriologist and smallpox expert; vice president and acting president of the Tennessee State Board of Health from 1900 to 1906; for many years member of the Memphis and Shelby County Tuberculosis Commission; member of the House of Delegates of the American Medical Association, 1903; on the staffs of the Baptist Memorial, John Gaston and St. Joseph hospitals; pathologist at the Nashville City and St. Thomas hospitals in Nashville from 1896 to 1904; director of rescue division, American Red Cross, from Cairo to Rosedale, in Mississippi River flood in 1937; since 1940 member of the U. S. Coast Guard Auxiliary; medical member of the U. S. Local Board in Memphis during World War I; associate editor of *Examiner and Practitioner* in New York; author of "Essentials of History," "Smallpox Diagnosis, Treatment, etc." and "Pulmonary Tuberculosis"; died May 9, aged 69.

Jacob Gutman * Brooklyn; Cornell University Medical College, New York, 1900; also a pharmacist; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the American Congress of Physical Therapy and the Association for the Study of Internal Secretions; past president of the East New York Medical Society; formerly professor of materia medica, College of Dentistry, University of State of New Jersey; served as professor of clinical chemistry, Jersey City College of Pharmacy, and instructor of medicine, New York Post-Graduate Medical School and Hospital; founder and director of the Brooklyn Diagnostic Institute; consulting physician, Manhattan General Hospital, New York, the Riverdale, Shore Road, Williamsburgh Maternity and Boro-Park General hospitals; attending physician, Wyckoff Heights and Unity hospitals from 1912 to 1920; director of the laboratory, Jewish Maternity Hospital, New York, from 1907 to 1910; chief of clinic, St. Mark's Hospital and German Polyclinic, New York, from 1906 to 1910; chief medical diagnostician and honorary surgeon for the New York City Police Department; at one time editor of *Archives of Diagnosis*; author of "Internal Secretions" 1924 and "Modern Drug Encyclopedia and Therapeutic Guide"; died in the Harkness Pavilion of the Columbia-Presbyterian Medical Center, New York, May 7, aged 67, of coronary thrombosis.

Karl Kornblum * Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1919; clinical professor of radiology at his alma mater; professor of roentgenology at the Jefferson Medical College of Philadelphia from Jan. 1, 1938 to Jan. 1, 1943; served as associate professor of radiology at the University of Pennsylvania Graduate School of Medicine from 1933 to 1938; diplomate of the National Board of Medical Examiners and specialist certified by the American Board of Radiology, Inc.; member of the American Roentgen Ray Society, Radiological Society of North America, Inc., American Society for the Control of Cancer and the American College of Radiology; former president Philadelphia Roentgen Ray Society; attending roentgenologist at the Jefferson Medical College Hospital; in 1937 appointed to membership in a council, sponsored by the American Society for the Control of Cancer, to coordinate cancer activities; died in the University of Pennsylvania Hospital May 16, aged 51, of cerebral hemorrhage.

Henry Bush Beeson * Racine, Wis.; the Hahnemann Medical College and Hospital, Chicago, 1908; Northwestern University Medical School, Chicago, 1912; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; vice president of the Milwaukee Society of Otolaryngology, 1940-1941; served in France as a captain of the 142d division during World War I; on the staff of the Sunny Rest Sanatorium; on the staff and chief of the department of ophthalmology and otolaryngology, St. Mary's Hospital; a member of the associate staff of St. Luke's Hospital; died March 4, aged 62.

Frank Lester Winsor * Laurens, N. Y.; Bellevue Hospital Medical College, New York, 1894; for many years health officer, school physician, trustee and president of the village; for twenty years a member of the board of education, serving most of that time as president; a member of the exemption board in the Onconta area during World War I; formerly medical superintendent of the Otsego County Sanatorium, Mount Vision; on the consulting staff of the Aurelia Osborn Fox Memorial Hospital, Onconta; a director of the Citizens National Bank and Trust Company; died in Morris March 15, aged 74, of coronary disease.

Seth De Zell Hawley, Tulsa, Okla.; University Medical College of Kansas City, Mo., 1903; member of the State Medical Association of Texas; at one time member of the city council and city superintendent of public health; examining physician for the army induction service in Tulsa during World War I and in Atlanta, Texas, during World War II; one of the organizers, formerly vice president and medical director of the Atlas Life Insurance Company; on the staff of the Ellington Memorial Hospital and president of the Rotary Club of Atlanta, Texas; died in Atlanta, Texas, March 3, aged 66, of heart disease.

Leonard Russell Donne, Brooklyn; Long Island College Hospital, Brooklyn, 1928; member of the Medical Society of the State of New York; fellow of the American College of surgeons; specialist certified by the American Board of Orthopaedic Surgery, Inc.; associate orthopedist at the Long Island College Hospital, associate fracture surgeon, Greenpoint Hospital, and assistant orthopedist at St. Mary's and St. Charles hospitals; died in the Mount Vernon Hospital, Mount Vernon, N. Y., March 7, aged 48, of injuries received when the automobile in which he was driving collided with a bus.

Roscoe Edward Conklin, Portland, Ore.; University of Colorado School of Medicine, Denver, 1935; member of the Oregon State Medical Society; a teaching fellow in clinical medicine at the Georgetown University School of Medicine, Washington, D. C., 1936-1937; associated with the Taylor Richardson Clinic, Ellensburg, Wash., from 1937 to 1940; fellow in medicine, University of Minnesota Graduate School, Minneapolis-Rochester, 1940-1942; died in the Scripps Metabolic Clinic, La Jolla, Calif., March 18, aged 34, of cerebral hemorrhage.

Herbert Clyde Anderson * Brooklyn; Long Island College Hospital, Brooklyn, 1896; veteran of the Spanish-American War; on the staff of the Long Island College Hospital; died March 31, aged 68, of tuberculosis.

Oscar Nels Ash, Goshen, Ohio; University of Cincinnati College of Medicine, 1924; died in the Holmes Hospital, Cincinnati, February 27, aged 46, of brain tumor.

Joseph P. Aydlotte, Earl, N. C.; Kentucky University Medical Department, Louisville, 1901; member of the Medical Society of the State of North Carolina; on the staff of the Shelby Hospital, Shelby; died March 15, aged 78, of chronic myocarditis.

Calvin Bates, Cambridge, Ohio; Miami Medical College, Cincinnati, 1886; served as county coroner; jail physician; died in St. Francis Hospital March 28, aged 87, of lobar pneumonia following influenza.

George Francis Bates, Portland, Maine; Long Island College Hospital, Brooklyn, 1885; for many years practiced in Yarmouth; member of the Maine Medical Association; in June 1935 received the association's gold medal for completion of fifty years in the practice of medicine; died in the Maine General Hospital March 6, aged 84, of lobar pneumonia and lymphatic leukemia.

Flavius Jasper Beck, Columbus, Ind.; Kentucky School of Medicine, Louisville, 1890; member of the Indiana State Medical Association; formerly coroner of Bartholomew County; served during World War I; died in the Veterans Administration Facility, Marion, March 27, aged 81, of hypertensive heart disease.

James Marshall Bell, Rochester, Ill.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1879; member of the Illinois State Medical Society and of its "Fifty Year Club," served as a representative in the Illinois General Assembly from 1910 to 1914; formerly president of the village board; since 1912 president of the Rochester State Bank; a member of the Sangamon County exemption board during World War I; died in St. John's Hospital, Springfield, March 23, aged 87, of bronchopneumonia.

James M. Billman, Sullivan, Ind.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1896; member of the Indiana State Medical Association; died March 27, aged 79, of chronic myocarditis.

Silas Oliver Clason, Gardiner, Maine; Medical School of Maine, Portland, 1904; member of the Maine Medical Association; since 1919 on the staff of the Gardiner General Hospital; died March 2, aged 64, of angina pectoris.

Fred J. Clippert, South Rockwood, Mich.; Chicago Medical College, 1890; served as president of the village of Delray, member of the board of water commissioners of Detroit and secretary of the board of pension examiners of Wayne County; died in St. Petersburg, Fla., March 26, aged 77, of carcinoma of the prostate and coronary occlusion.

John Paul Earnest Jr. @ Washington, D. C.; George Washington University School of Medicine, Washington, 1923; at one time professor of medical jurisprudence at his alma mater; on the visiting staffs of the Doctors Hospital and the Emergency Hospital, where he died May 8, aged 45, of heart disease.

Asa Gaston DeLoach, Atlanta, Ga.; University of Georgia Medical Department, Augusta, 1906; member of the Medical Association of Georgia; served during World War I; on the staff of the Crawford W. Long Memorial Hospital; died in the Veterans Administration Facility March 15, aged 64, of arteriosclerotic heart disease.

Herbert Franklin Gross @ Harrisburg, Pa.; Jefferson Medical College of Philadelphia, 1899; fellow of the American College of Surgeons; served as president of the Harrisburg Academy of Medicine; a charter member of the hospital board and staff, served as medical director, and chief surgeon at the Harrisburg Polyclinic Hospital, where he died January 26, aged 68, of acute myocardial infarction.

Abraham D. Halperen, Philadelphia; Medico-Chirurgical College of Philadelphia, 1905; died in the Pennsylvania Hospital January 27, aged 60, of bronchiectasis.

William Perry Hunnicutt, Los Angeles; College of Physicians and Surgeons, Medical Department of Kansas City University, Kansas City, Kan., 1898; member of the Colorado State Medical Society; served on the staffs of various hospitals and institutions in the state of Colorado; died February 10, aged 81, of heart disease.

Charles Bernard Lunsford, Goshen, Ind.; Chicago College of Medicine and Surgery, 1907; served as health officer of Elkhart County; died March 7, aged 72, of chronic myocarditis, diabetes mellitus and cerebral thrombosis.

Edward A. McClellan, McClellanville, S. C.; Atlanta College of Physicians and Surgeons, 1902; died March 4, aged 71, of hypertensive heart disease, decompensation, arteriosclerosis and epilepsy.

George Lincoln McCullough, Mechanicsburg, Ohio; Ohio State University College of Medicine, Columbus, 1934; member of the Ohio State Medical Association; served as a member of the Champaign County Board of Health; died March 2, aged 35, of endocarditis and undulant fever.

William Robert McGuirk @ Providence, R. I.; Columbia University College of Physicians and Surgeons, New York, 1892; chairman, board of hospital commissioners; member of the staffs of St. Joseph's, Miriam and Homeopathic hospitals; formerly on the staff of the Rhode Island Hospital; in 1936 received the doctor of laws degree from Providence College; died March 12, aged 72, of coronary thrombosis.

Albert Rowcliffe Moffitt @ Poughkeepsie, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1904; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; for thirty-seven years surgeon at the Vassar Brothers Hospital; died March 20, aged 67, of coronary occlusion.

Frank Edmundson Nabers, Birmingham, Ala.; University of Virginia Department of Medicine, Charlottesville, 1903; also a pharmacist; member of the Medical Association of the State of Alabama; on the staff of St. Vincent's Hospital; died March 10, aged 73, of cerebral hemorrhage.

Mixon Lucius Newsome, Dothan, Ala.; Meharry Medical College, Nashville, Tenn., 1927; died March 11, aged 44.

John Gilbert Null, Anderson, Calif.; College of Physicians and Surgeons of San Francisco, 1906; at one time adjunct professor of mental and nervous diseases at his alma mater; justice of the peace for many years; died March 12, aged 74, of Parkinson's disease.

Patrick Francis O'Farrell, Mount Olive, Ill.; Loyola University School of Medicine, Chicago, 1916; member of the Illinois State Medical Society; veteran of World War I; a captain in the medical reserve corps of the U. S. Army from Jan. 10, 1941 to Jan. 22, 1942; local railroad surgeon; on the staff of St. Francis Hospital, Litchfield, where he died March 21, aged 57, of hemiplegia.

Richard S. Watkins, Phenix City, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1881; member of the Medical Association of the State of Alabama; died in Anniston, January 29, aged 84, of pulmonary tuberculosis.

DIED IN MILITARY SERVICE

Courtland Beeler, Louisville, Ky.; University of Georgia Medical Department, Augusta, 1927; began active duty as a captain in the medical corps, Army of the United States, on July 1, 1942; died in England April 9, aged 42, of coronary thrombosis.

William Morgan Haller @ Bemidji, Minn.; University of Nebraska College of Medicine, Omaha, 1933; began extended active duty as a captain in the medical corps, Army of the United States, on July 31, 1942; later promoted to major; died in Everett, Pa., March 11, aged 33, of injuries received in an automobile accident.

Nathan Shuser @ Lemoyne, Pa.; Syracuse University College of Medicine, 1929; served an internship at the Hamot Hospital, Erie, and a residency at the Harrisburg Hospital, Harrisburg; began active duty as a captain in the medical corps of the Army of the United States on Dec. 14, 1942; died in Camp Davis, N. C., April 14, aged 41, of cardiac failure, acute pulmonary edema and brain abscess.

Edward Eyster Sprenkel @ Jenkintown, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1923; specialist certified by the American Board of Otolaryngology; lieutenant commander, medical corps, U. S. Naval Reserve; died in the United States Naval Hospital, Philadelphia, January 23, aged 44, of carcinoma of the sigmoid.

Warren Nelson Steele Jr., Modesto, Calif.; University of Southern California School of Medicine, Los Angeles, 1937; member of the California Medical Association; commissioned a first lieutenant in the medical corps, Army of the United States, on June 11, 1942 and later promoted to captain; died in Barksdale Field, La., Aug. 23, 1943, aged 32, in an airplane accident.

Orrin Endre Swenson, Stoughton, Wis.; University of Wisconsin Medical School, Madison, 1938; captain in the medical reserve corps, U. S. Army, attached to the Air Corps; a flight surgeon of a service command stationed in India for more than a year; chief medical officer of Seymour Johnson Field, North Carolina, where he died Dec. 21, 1943, aged 30.

Correspondence

PSYCHIATRIC ASPECTS OF MARIHUANA INTOXICATION

To the Editor:—In *THE JOURNAL*, April 1, you published a communication from J. Bouquet, M.D., expert on the Narcotics Commission of the League of Nations, Hospital Sadiki, Tunis, in which he takes a page and a half to discuss the paper by Dr. Samuel Allentuck and myself entitled "The Psychiatric Aspects of Marihuana Intoxication," which appeared in the *American Journal of Psychiatry* for September 1942. This communication appears to suggest that we have made our results known to the public in some undesirable and improper manner and, by giving partial quotations of Dr. Lawrence Kolb's discussion of this paper, gives a quite incorrect impression.

Our paper represented material from a study carried out by the Mayor's Committee on the Studies of Marihuana and sponsored by the New York Academy of Medicine. A volume will be issued shortly giving all this material in detail, so that I shall do nothing more than point out what I consider improper accusations and statements on Dr. Bouquet's part. The paper was presented at the meeting of the American Psychiatric Association and published in the *American Journal of Psychiatry*. It was not given out to the public by either of the authors.

It also seems to me that, in fairness to the authors of this paper and to Dr. Kolb, he should have given complete quotations where a partial quotation gives a very different idea. I should like to add the following quotations from Dr. Kolb's discussion, which, if they had appeared in Dr. Bouquet's letter, would have given an entirely different impression: "In view of the misinformation and alarm that has gotten abroad about marihuana, it is important to have a competent group like the Mayor's Committee to study this drug and present the real facts. In the meantime Dr. Allentuck's timely paper will tend at least to get physicians' feet back on the ground. The case against marihuana has been very much overdrawn. . . ." And "It is reassuring to find, from the careful study which Dr. Allentuck has made, that the alarm about the relation of marihuana to crime is unfounded." Any one reading Dr. Bouquet's letter would never have realized that Dr. Kolb made such statements as these.

Medical and popular literature is filled with old wives' tales about the effects of various narcotic drugs. It is somewhat surprising to find objection to the publication of carefully worked out studies on the ground that it is improper and dangerous rather than to raise the one issue of science—was the study carried out in a proper scientific manner and are the authors justified in drawing the conclusions that they did from the studies made?

KARL M. BOWMAN, M.D., San Francisco.

RHEUMATIC FEVER PROGRAM OF THE CHILDREN'S BUREAU

To the Editor:—I have just read the report in the April 29 issue of *THE JOURNAL* in which Dr. W. W. Bauer made a reference to the rheumatic fever program and included some statements about it which are rather misleading and others which are in error.

In order to keep the record straight, I should like to summarize briefly the background in the development of this phase of the crippled children's program. Since the first meeting of the Children's Bureau Advisory Committee on Services for Crippled Children, held in 1935, there had been evidence of the interest of the Advisory Committee in the problems related to the needs of the child with rheumatic fever and heart disease. During the initial period in the development and extension of state services for crippled children, the Children's Bureau was

repeatedly approached by state agencies and professional and lay groups to include the rheumatic child in the crippled children's program. In 1938 region I of the American Academy of Pediatrics passed a formal resolution urging such action. At each of the meetings of the Advisory Committee (held annually except in 1939) this subject was given full consideration, and at the meeting held on Dec. 2, 1938 the Advisory Committee recommended that the bureau seek additional federal funds in order to assist state crippled children agencies in the development of services for the rheumatic child. In 1939 the Children's Bureau presented to Congress the needs for additional funds for the crippled children's program and presented evidence regarding the needs of children with rheumatic fever and heart disease. On the basis of the evidence given, Congress amended title V, part 2, of the Social Security Act, authorizing an additional annual appropriation of \$1,000,000 for services for crippled children.

Rheumatic fever programs developed in connection with state services for crippled children now are in operation in seventeen states. The programs are not administered by the Children's Bureau but are developed entirely as state programs similar to the regular crippled children services. The Children's Bureau serves only in an advisory and consultative capacity in the development of the plans and of course provides financial assistance through the funds appropriated by Congress.

The points which I wished to make clear were that the rheumatic fever program was not developed under an authority for experimentation and demonstration in medical care but as an integral part of the existing services for crippled children under the provisions of title V, part 2, of the Social Security Act; it is administered by state crippled children agencies, which are not always state health departments; the program was developed after full consideration on several occasions by the Children's Bureau Advisory Committee on Services for Crippled Children; and, finally, the programs are planned and administered entirely by state agencies under the provisions of title V, part 2, of the Social Security Act.

A. L. VAN HORN, M.D., Washington, D. C.
Assistant Director for Crippled Children,
Division of Health Services.

DIAGNOSIS OF MENINGOCOCCIC INFECTIONS

To the Editor:—I was interested in the editorial comment in the April 22 issue entitled "Aid to Diagnosis of Meningococcic Infections." This referred to the work of W. G. Bernard and A. C. Jordan which reported the presence of meningococci in smears from purpuric lesions.

The presence of petechial and purpuric lesions in meningitis in the so-called spotted form of the disease is usually not a frequent occurrence except during certain epidemics. In the epidemic in Texas in 1912, which I reported, the incidence was less than 1 per cent. However, it is particularly important in this form of the disease to establish other aids in the diagnosis, and the findings of the authors is therefore a valuable one.

The spotted form of the disease is an expression of the fulminating type of meningitis. This type is characterized by severe general sepsis in this early and often fatal stage even before meningitis itself is established.

In view of my experience with this form of the trouble in epidemiologic studies, I especially called attention in my monograph on this disease in 1913 to the value of other aids in diagnosis since, as I mentioned, the spinal fluid may be entirely negative in the early premeningitic stage. Of course, blood culture is an aid, but it takes too long for diagnosis.

I called attention in 1913 to the following examinations particularly: 1. In the examination of the purulent discharge in

conjunctivitis, which is very frequently present in all types of meningococcic meningitis, smears show large numbers of typical gram negative diplococci. 2. The examination of herpetic fluid, likewise a common finding, shows meningococci in smears. 3. The examination of the urine during the early phase often shows meningococci in large numbers.

Other foci showing the meningococcus are otitis media discharge, joint effusions, pleural and pericardial effusions and sputum in cases of meningococcic pneumonia. However, these are later complications of meningitis and would be of no assistance in the early diagnosis.

ABRAHAM SOPHIAN, M.D., Kansas City, Mo.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in *THE JOURNAL*, May 27, page 302.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Oral*. Chicago, June 17. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written*. Various centers, Oct. 16. Candidates in military service may take examination at their place of duty. Final date for filing application is August 15. Asst. Sec., Dr. W. A. Werrell, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY. Chicago, June 5. Sec., Dr. Paul C. Bucy, 912 S. Wood St., Chicago.

AMERICAN BOARD OF OBSTETRICS & GYNECOLOGY. *Oral*. Part II. Pittsburgh, June 7-13. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: New York, June 2-5. Chicago, Oct. 5-7. Sec., Dr. S. Judd Beach, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Oral and Written*. Part I. Chicago, New Orleans, New York and San Francisco, October. Final date for filing application is August 1. Sec., Dr. G. A. Caldwell, 3503 Prytania St., New Orleans.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral*. New York City, June 1-4. Chicago, Oct. 4-7. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City, Ia.

AMERICAN BOARD OF PATHOLOGY: *Oral and Written*. Chicago, June 7-8. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit.

AMERICAN BOARD OF PEDIATRICS: *Written*. Locally, Sept. 22. *Oral*. St. Louis, Nov. 8-9. Final date for filing application is Aug. 15. Sec., Dr. C. A. Aldrich, 115½ First Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written*. Part I. Various centers, October 25. Final date for filing application is August 15. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Arm of Insane Patient Fractured in Attempt at Restraint.—The patient, a woman about 33 years of age, had suffered from dysmenorrhea and difficult menstruation since puberty. There was evidence that as her menstrual period approached she had "spells" but that otherwise her mental condition was "good." She had completed satisfactorily the seventh or eighth grade at school and was able to take care of herself, to do housework, to make her own clothes and to help with farmwork. On the other hand, the superintendent of a state hospital in which she had been temporarily confined testified that she was suffering from dementia precox that had set in at puberty and that while in the hospital she exhibited hallucinations and delusions and was violent. In June 1941 she was taken—for just what reason is not clear—to a "clinic" conducted by the defendant physician and remained there for about eight days. Her family visited her soon after admittance and, according to their testimony, she seemed "bright, smiling and in good condition." The defendant physician stated that after admission to his clinic she became increasingly violent, made grotesque motions, stabbed at the walls with the table-

ware, tore out the electric light, refused to take the medicine prescribed for her and became frightening to the nurses. One day she became unruly and, so the physician stated, she got under her bed and in attempting to get her out he pulled her arm and fractured the humerus. He could not set the fracture because the patient refused "to have him put a dressing on." Sometime later, at least twenty-four hours, he called her family, who went to the clinic and found her highly nervous and in a disturbed mental condition. There were bruises of an aggravated nature all over her body, face, hips and limbs. Her arm was swollen to an "enormous" size and hanging down by her body. The family was advised to remove her from the clinic, as the clinic was not prepared to handle a case of that sort. The family testified that the defendant physician, on being asked what should be done, told them to tie something around the broken arm and let it hang down and gave them some chloral hydrate, without instructions as to the dosage. The chloral hydrate was not used because of the labeling of poison on it. Later the patient was taken to another hospital, where her arm was put in a cast. There was evidence that, whereas the patient's mental condition had been reasonably good up to the time of her admittance to the defendant's clinic, thereafter she was practically insane and at times had to be tied or kept in a wire cage.

Suit was subsequently instituted against the defendant physician for alleged malpractice. At the trial, Dr. Beale, who had treated her for about two years prior to her admittance to the clinic, testified generally in support of the patient's claims. Among other things he stated that, because of the failure to reduce the patient's fracture, there was a malformation at the broken place which interfered with the free movement of the arm and was calculated to injure the surrounding tissue and produce pain. He further testified that the accepted practice in the treatment of fractures such as was suffered by the patient was to reduce the fracture and immobilize it as soon as possible. In this conclusion he was corroborated by another physician witness. This second physician stated that the accepted practice when a person has a fracture and does not agree for a physician to set the broken limb is to administer anesthesia and then use force enough to hold the patient quiet while the fracture is set and bandage applied. At the close of the evidence, the trial court granted a motion for a nonsuit and the patient appealed to the Supreme Court of North Carolina.

In refusing to permit the jury to pass on the case, the trial court remarked "I don't conceive it to be the law, if doctors cannot agree, to ask the jury to agree on the case." Students of this branch of jurisprudence, said the Supreme Court, are not unfamiliar with the doctrine the judge probably had in mind. Applying it in extreme form, it has sometimes been held that no verdict affirming malpractice can be rendered in any case without the support of expert medical opinion. Any case must be articulated from the facts. The inhibition is not against the admission of nonexpert testimony, since lay witnesses are permitted to give only factual testimony; it is against conclusions by the jury, who are themselves laymen, on the facts in evidence. "Between the postulated facts and the rationalization by the jury, there could be no commerce except in the presence of the professional catalytic." Here it is suggested that the failure of expert witnesses to be in substantial accord lets the jury out of the picture altogether. In cases involving the application of scientific knowledge peculiar to that branch of learning, there is no question that the rules of evidence requiring expert opinion in matters of scientific knowledge ought to be carefully enforced, both in the interest of justice and in the protection of a profession peculiarly liable to suit when, after exhausting every known resource and applying the highest degree of skill, the result is not what the patient or friends desire or hoped for. It is often said that the physician does not insure the result; and that is simply to say that he is not God and does not hold in his hand all the issues of life. But often the difficulty of establishing malpractice does not arise out of rules requiring the evidence of experts as to matters of peculiarly scientific learning and practice. Often the reason has nothing particularly to do with the question of scientific knowledge or skill in its application, but rather the contrary. It is

the reluctance to permit the jury to draw inferences from the facts because of what has been long regarded as the peculiar nature of medical knowledge and practice, which among the professions makes it *sui generis* in the face of challenge. The usual argument which has relegated the decision of malpractice cases to the opinion of professional men and thence to the court, as distinguished from the jury, is that the practice of medicine and surgery is empiric—which means that it has not yet become a matter of scientific knowledge or proceeding. The implication is that only a physician can know from his own actuarial or statistical experience, or that of others handed down to him, what is good or bad practice in any case. On this theory the physician, instead of being an expert in scientific learning and methods, is an expert in the trial and error results which are nowhere available except in the arcana of the profession. Many opinions afford a curious blending of views as to the scientific and empiric status of the profession, with consequent confusion as to the result. But, continued the court, science literally rules in the vast field of medicine and surgery, rather than the empiric standards which have formerly proved helpful without any particular scientific understanding of the reason why. One of the incidental obligations of science imposed on professional men is that they shall be judged by the standards of the science they profess, and not wholly by empirical standards, vague and indefinite, and incapable of scientific expression, behind which may lurk charlatanry and quackery. Thus in the most recently collected authorities, the empiric basis of complete cloture is wholly lacking. They stress the necessity of enforcing the rule against the admission of lay opinion on matters peculiarly within the domain of expert scientific knowledge which belongs to the profession. They follow the general rule, which, in the nature of things, has a wide coverage and regard malpractice ordinarily as unproved, or totally wanting in evidence, when such expert testimony is lacking. But they uniformly recognize exceptions to the rule—or, rather, recognize instances where the rule is inapplicable—where the facts are so clearly within the common knowledge and experience of laymen that they may be reasonably interpreted by the jury.

In the case at bar, continued the court, there were two outstanding features which must be separately considered: First, is the evidence that the defendant, while his patient was admittedly in an insane condition, applied such force to her arm—"jerked" it, as to break it. No reasonable person would contend that the breaking of the patient's arm was either necessary or desirable in treating her for her dysmenorrhea, nervousness or insanity. The factual particulars with regard to the breaking of the arm—the force used and the circumstances under which it was used—are matters for the jury. If these facts are all established contrary to the contentions of the defendant, what follows? In the face of an extraordinary occurrence like this, may the jury draw no inference adverse to the defendant on the issue of malpractice because of the absence of expert testimony?

The second item of evidence, said the court, refers to the treatment of the patient after the arm had been broken—the failure to immobilize or set the limb immediately or within a reasonable time after it had been broken, to the knowledge of the defendant physician. Various reasons were stated by the physician as to why this was not done, but we are considering the evidence of the patient. That evidence is that the limb was not immobilized, the bones were not set, nor the fracture reduced, for an extended period while the patient was still in the care of the physician; and on her being taken away from the hospital by her relatives and family, the defendant advised them to wrap a cloth around the arm and let it hang. As to this phase of the alleged malpractice there is, however, expert medical testimony from which inferences may be drawn condemnatory of the practice. For that reason we enter into no controversial discussion as to the extent to which the breaking of the arm might speak for itself. It is required of a physician who has undertaken the care and treatment of a patient not only that he have a reasonable amount of the knowledge and skill he holds himself out to have but that he use it in the treatment of the patient—make it available to the patient. After the relation has been established, unless otherwise limited in

the contract of employment, it cannot be terminated at the mere will of the physician but must last until the treatment is no longer required or until it is dissolved by the assent of the parties or until reasonable notice is given in order that the patient may have an opportunity to engage the services of another. In addition to what we have said, some aspects of the evidence may give rise to an inference of abandonment for which, if it actually occurred, the defendant physician would be liable. We see no point in taking the case away from the jury because the physician witnesses could not agree. The decision is not for them, nor is the verdict of the jury an opinion. It is the determination of the truth from the evidence. In controversies about inventions and patents, about delicate and complicated machinery, about construction and engineering practices, and in dozens of other matters about which the unaided juror knows little or nothing, where disagreement often exists among the experts, the jury has the final say. The case at bar may be conceived to be somewhat simpler. Taking the evidence in the most favorable light to the plaintiff, she was entitled to have it submitted to the jury. The judgment sustaining the motion for judgment of nonsuit was accordingly reversed.—*Groce v. Myers*, 29 S. E. (2d) 553 (N. C., 1944).

Society Proceedings

COMING MEETINGS

- American Medical Association, Chicago, June 12-16. Dr. Olin West, 535 N. Dearborn St., Chicago 10, Secretary.
- American Academy of Tuberculosis Physicians, Chicago, June 13. Dr. Oscar S. Levin, P. O. Box 7011, Denver, Colo., Secretary.
- American Association for the Surgery of Trauma, Chicago, June 9-10. Dr. Gordon M. Morrison, 520 Commonwealth Ave., Boston, Secretary.
- American Association of Genito-Urinary Surgeons, Stockbridge, Mass., June 8-10. Dr. Charles C. Higgins, 2020 E. 93d St., Cleveland, Secretary.
- American Broncho-Esophagological Association, New York, June 6. Dr. Paul H. Holinger, 700 N. Michigan Ave., Chicago, Secretary.
- American College of Allergists, Chicago, June 10-11. Dr. Fred W. Wittich, 401 LaSalle Medical Bldg., Minneapolis 2, Secretary.
- American College of Chest Physicians, Chicago, June 10-12. Dr. Paul H. Holinger, 500 N. Dearborn St., Chicago, Secretary.
- American Diabetes Association, Chicago, June 11. Dr. Cecil Striker, 630 Vine St., Cincinnati 2, Secretary.
- American Federation for Clinical Research, Chicago, June 12-13. Dr. Thomas M. Durant, 3401 N. Broad St., Philadelphia 40, Secretary.
- American Gastro-Enterological Association, Chicago, June 12-13. Dr. J. Arnold Bagen, 102 Second Ave. S.W., Rochester, Minn., Secretary.
- American Gynecological Society, Hershey, Penna., June 19-21. Dr. Howard C. Taylor Jr., 842 Park Ave., New York 21, Secretary.
- American Laryngological Association, New York, June 7-8. Dr. Arthur W. Proetz, 3720 Washington Blvd., St. Louis, 8, Secretary.
- American Laryngological, Rhinological and Otolological Society, New York, June 9-10. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.
- American Medical Women's Association, Chicago, June 10-11. Dr. Carroll L. Birch, 2045 Sedgwick St., Chicago, Secretary.
- American Physicians' Art Association, Chicago, June 12-16. Dr. F. H. Redewill, 536 Flood Bldg., San Francisco, Secretary.
- American Proctologic Society, Chicago, June 11-13. Dr. W. H. Daniel, 1930 Wilshire Blvd., Los Angeles 5, Secretary.
- American Society for Research in Psychosomatic Problems, Chicago, June 10-11. Dr. Edwin G. Zabriskie, 115 East 61st St., New York, Secretary.
- American Therapeutic Society, Chicago, June 10. Dr. Oscar B. Hunter, 1835 I St. N.W., Washington 6, D. C., Secretary.
- American Urological Association, St. Louis, June 19-22. Dr. Thomas D. Moore, 899 Madison Ave., Memphis, 3, Tenn., Secretary.
- Association for Research in Ophthalmology, Chicago, June 13. Dr. B. F. Payne, School of Aviation Medicine, Randolph Field, Texas, Secretary.
- Association for the Study of Internal Secretions, Chicago, June 12-13. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City, Secretary.
- Maine Medical Association, Rockland, June 25-27. Dr. Frederick R. Carter, 142 High Street, Portland 3, Secretary.
- National Gastroenterological Association, New York, June 7. Dr. G. Randolph Manning, 1819 Broadway, New York 14, Secretary.
- Society for Investigative Dermatology, Chicago, June 13. Dr. S. W. Becker, 55 E. Washington St., Chicago, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1934 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

27:289-432 (March) 1944

- Effect of Certain Substances on Intrahepatic Circulation of Blood in Intact Animal. K. G. Wakim.—p. 289.
- Auriculoventricular Block with Ventriculoauricular Response: Report of 6 Cases and Critical Review of Literature. M. Winternitz.—p. 301.
- Cardiovascular Dynamics in Patients with Angina Pectoris. M. D. Altschule.—p. 322.
- *Critical Evaluation of Cardiac Mensuration in Treatment of Addison's Disease with Desoxycorticosterone Acetate. T. H. McGavack.—p. 331.
- Production of Nephrosclerosis and Cardiac Hypertrophy in Rat by Desoxycorticosterone Acetate Overdosage. H. Selye and C. E. Hall.—p. 338.
- Intraventricular Block with Ectopic Beats Approaching Normal QRS Duration. A. J. Simon and R. Langendorf.—p. 345.
- Effect on Plasma Volume of Dehydration Produced by Low Salt Diet and Ammonium Chloride. R. H. Lyons, S. D. Jacobson and N. L. Avery Jr.—p. 353.
- *Circulation in Man in Certain Postures Before and After Extensive Sympathectomy for Essential Hypertension: I. Physiologic Aspects. E. E. Gambill, E. A. Hines Jr. and A. W. Adson.—p. 360.
- *Circulation in Man in Certain Postures Before and After Extensive Sympathectomy for Essential Hypertension: II. Effect of Certain Mechanical Agents and Paredrinol on Blood Pressure and Pulse Rate. E. E. Gambill, E. A. Hines Jr. and A. W. Adson.—p. 381.
- Comparison of Total Vibrations Obtained from Normal, Rapidly Dying, Human Heart with Those Obtained in Chronic Myocardial Disease. W. B. Koutz and S. T. Wright.—p. 396.
- Delayed Diastolic Murmur Associated with Ventricular Ectopic Beats: Phonocardiographic Studies. H. Weyler.—p. 409.

Cardiac Mensuration in Addison's Disease.—According to McGavack the reciprocal activity of sodium and desoxycorticosterone acetate in maintaining the patient with Addison's disease has been previously demonstrated according to the equation $Na \times D = k$, where Na represents the daily ingestion of sodium in grams, D the daily requirement of desoxycorticosterone acetate in milligrams, and k a constant for which, in 8 patients, values between 30 and 45 have proved satisfactory. Cardiac mensuration has been used as an index of the degree of sufficiency of the treatment, and it has been found that, within limits, the size of certain cardiac measurements, notably the cardiothoracic ratio, frontal cardiac area and total cardiac volume, vary directly with the condition of the patient. As the patient improves a concomitant increase occurs in the proportions of the abnormally small heart associated with untreated Addison's disease. The author stresses the limitations of cardiac mensuration as a guide to the amount of desoxycorticosterone acetate and sodium which should be administered to any patient with Addison's disease at a given time. Some 200 observations of cardiac size in 13 patients with Addison's disease served as a basis for this study. Eight of the patients have been seen in crisis and followed under treatment with desoxycorticosterone acetate and measured amounts of sodium for periods varying from twenty weeks to four years. Individual variations in cardiac size and errors inherent in the technical procedures for carrying out cardiac mensuration must be considered. The equation is not applicable to (a) patients in crisis and for short periods after the control of crisis; at such times, larger amounts of sodium and desoxycorticosterone may be used with relatively small upward alterations in the cardiac silhouette; (b) patients under control for long periods of time who inadvertently or purposely utilize more than the prescribed amount of either sodium or desoxycorticosterone acetate, or both, despite which the cardiac measurements may remain well within normal limits, while hypertension or other toxic symptoms appear.

Circulation Before and After Sympathectomy for Hypertension.—The effect of posture on the circulation has assumed increasing significance since the syndromes of spontaneous and of postoperative orthostatic hypotension have been recognized clinically. The relatively recent introduction of extensive sympathectomy for the relief of essential hypertension has resulted in opportunities for seeing and studying certain persons who have orthostatic hypotension and orthostatic tachycardia after this type of operation. Ten patients were studied in the horizontal and 60 degree head up postures before and after extensive sympathectomy for essential hypertension. The observations were as follows: 1. The pulse rate was faster in both postures after sympathectomy. 2. When patients were changed from the horizontal to the 60 degree head up posture the systolic blood pressure fell twice as much and the diastolic pressure fell seven times as much after, as before, operation. 3. The difference in blood pressure between the leg and the arm showed a slight tendency toward an increase after sympathectomy, which was contrary to what was expected. 4. Significant decreases in pulse pressure in the arm and leg followed sympathectomy. These decreases were greatest when the patients were in the head up posture, and especially great among those who had postoperative orthostatic hypotension. 5. The performance of the Flack test was much impaired after sympathectomy. The greatest impairment occurred when the patients were in the head up posture and among patients with postoperative orthostatic hypotension. The systolic blood pressure during this test fell eight times as much, and the systolic rebound pressure was only two-thirds as great after operation as before operation. 6. The circulation time from arm to foot in the head up posture decreased after operation in cases in which reductions in blood pressure were minimal to fair; it increased after operation in cases in which reductions in blood pressure were great. 7. The circulation time from foot to arm was unobtainable in the head up posture on the tilt table, apparently because of stagnation of the solution used for testing in the injected limbs. 8. Only those patients who had excellent reductions in blood pressure after sympathectomy had a real decrease in response to the cold pressor test. 9. After sympathectomy the cardiac output was apparently greater in both postures. However, the cardiac output was less in the head up posture than in the horizontal before, as well as after, sympathectomy. This difference was greater after operation and was greatest in cases in which much postoperative orthostatic hypotension developed. 10. The stroke volume was increased in both postures after sympathectomy, but it was less when the patients were in the head up posture. 11. The basal metabolic rate was decreased in both postures after sympathectomy. An actual increase in the basal metabolic rate apparently may occur while the patient is exhibiting a decrease in blood pressure in response to the head up posture. 12. The volume of the leg on standing erect was decreased after sympathectomy; the average decrease was 7.3 per cent of the total preoperative volume. The exact reason for this unexpected observation has not been discovered.

Effects of Mechanical Agents and Paredrinol on Blood Pressure After Sympathectomy.—Ten cases of essential hypertension were studied before and after extensive splanchnic sympathectomy. The following observations were made: The use of a tight abdominal binder was of considerable benefit in counteracting excessive degrees of postoperative orthostatic hypotension and tachycardia. To be effective, the binder must be properly applied. The fact that the binder had little effect preoperatively or postoperatively in those cases in which orthostatic hypotension and orthostatic tachycardia were not great, but did increase the blood pressure and slow the pulse rate after operation in cases in which these phenomena occurred, suggests that the defect responsible for this condition lies, at least in part, within the abdomen. Cuffs tightly applied above both knees in order to cut off the circulation to the legs tended to elevate the blood pressure and slow the pulse rate. This effect was greater after, than before, sympathectomy and was greatest after operation among patients with the greatest degrees of orthostatic hypotension and tachycardia. The combined use of an abdominal binder and thigh cuffs had a greater blood

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

GENERALIZED SKIN SENSITIZATION FROM TOPICAL CONTACT

To the Editor:—Are there any known cases of allergic reactions occurring after exposure to mustard or ten days after exposure to ivy poisoning? I underwent skin tests with lewisite and mustard. To the former I had a typical reaction with vesicle formation on the second day at the untreated area and erythema of the treated area. These spots now show slight hyperkeratosis and pigmentation. Where the mustard was applied there was no reaction of the decontaminated area, and, after two days, slight redness of the untreated area which gradually faded. Two days ago I noticed some erythema and itching of the latter area. Yesterday, five weeks after exposure, a typical mustard vesicle formed. I do not remember having heard of such a delay in the appearance of mustard reaction. The only parallel in my own experience was an occasion some years ago when I experimentally applied poison ivy to my skin, and a week or ten days elapsed before development of the typical rhus dermatitis.

Captain, M. C., A. U. S.

ANSWER:—It has been shown repeatedly that a generalized sensitiveness of the skin of the contact type can be artificially induced by limited localized application of sensitizers, such as poison ivy (Strauss, H. W.: Artificial Sensitization of Infants to Poison Ivy, *J. Allergy* 2:137 [March] 1931), chlordinitrobenzene (Sulzberger, M. B., and Baer, R. L.: Sensitization to Simple Chemicals, *J. Invest. Dermat.* 1:45 [Feb.] 1938) and others. A delayed reaction, appearing several days after a local application of a sensitizer, has also been known to occur. In an experiment with poison ivy in a person who had previously not been exposed to the plant, a dermatitis occurred ten days after the initial patch test (Field, Hans, and Sulzberger, M. B.: Experiments in Poison Ivy Sensitivity, *J. Allergy* 7:139 [Jan.] 1936). Clinical experience also confirms such observations. The explanation is probably as follows: Some of the antigen applied to the skin becomes fixed by the cells. After an incubation period of several days in such previously nonsensitive persons a titer of antibodies may reach a sufficient concentration to react with the uneliminated fixed antigen. This possibility is analogous to the delayed reaction in serum sickness, which occurs in individuals receiving a primary dose of the serum. Undoubtedly, as in poison ivy and other contact allergens, the same process can take place in connection with mustard gas (dichlorethyl sulfide).

AMENORRHEA ASSOCIATED WITH POLYCYSTIC OVARIES

To the Editor:—A married couple are anxious to have children, but so far all efforts have been unsuccessful. The source of the difficulty has been traced to the wife, who has amenorrhea due to polycystic ovaries, the mole partner being apparently normal. Her gynecologist at first advised x-ray treatment. Now he recommends, instead, resection of the cysts of both ovaries. Kindly let me know what the present status of this operation is. I should like to know exactly how much and what part of the ovary is removed in the operation and what the rationale of the procedure is. Is the occurrence of polycystic ovaries rare, so that few gynecologists have experience with the condition?

M.D., New York.

ANSWER:—The term "polycystic ovaries" is often loosely used by surgeons who have little concept of the actual pathologic condition responsible for the ovarian enlargement. Generally the multiple cysts are follicular in origin and may be cystic atretic follicles with old and probably nonfunctioning granulosa cells; but not infrequently the cystic follicles are surrounded by a zone of surprisingly active looking granulosa cells which almost certainly are the source of estrogen.

Such ovaries are not infrequently found in amenorrheic women and also in women with functional bleeding. Most gynecologists agree that resection of the cysts of such ovaries is not rational therapy for either amenorrhea or functional bleeding. It was tried and abandoned by numerous gynecologists almost half a century ago. The reason for failure is obvious when one considers the operation anatomically and physiologically. First, since the cystic follicles are generally distributed through the entire ovarian stroma, complete resection of the cysts is impossible without complete oophorectomy. Secondly, it is obvious that the primary trouble lies beyond the ovary. The disturbance in the ovaries is the result of their failure to receive the proper stimulus from the anterior pituitary to bring about the normal physiologic cycle. By way of encouragement the patient might be told that amenorrhea associated with "polycystic ovaries" sometimes ends spontaneously.

COLD HANDS AND FEET

To the Editor:—A girl aged 19 whose past history is essentially negative for serious illnesses complains of cold hands. She assists in a physician's office and during her frequent contact with patients finds this condition of annoyance to herself and the patients. Both hands and feet vary from a normal to a pale color, never blue. Her pulse rate, red and white blood cell count and hemoglobin are normal. Menstruation is regular and normal, routine examination of the urine shows it normal, the hair and skin are normal, and energy and activity are normal. The basal metabolic rate has not been determined. Suggestions regarding etiology and treatment will be appreciated.

M.D., Minnesota.

ANSWER:—The subject mentioned in the inquiry is probably one of those who have cold hands as a constitutional characteristic and not as a result of organic disease. However, organic diseases such as those affecting the nervous system, cervical rib, Raynaud's syndrome and thromboangiitis obliterans should be excluded by neurologic examination, determination of the status of pulsations in the peripheral arteries, determination of the effect of elevation and dependence on the color of the skin of the hands, and by determining whether or not exposure to cold produces pallor or cyanosis characteristic of Raynaud's syndrome. It is probable that all these studies will be negative. Most subjects with cold hands accept the situation as a minor handicap. Residence in a warm climate is ordinarily helpful. If coldness of the skin of the hands is of sufficient magnitude, cervical sympathectomy should be considered. Almost complete assurance can be given that this procedure will produce warm dry hands permanently. Such an operation should be performed only by an experienced neurosurgeon, who would carry out the operation so that Horner's syndrome is not produced.

RENAL PAPILLITIS

To the Editor:—Will you kindly supply information on papillitis of the kidney?

Roy M. Bobbitt, M.D., Huntington, W. Va.

ANSWER:—The apexes of the pyramids of Malpighi which project into the calices and the pelvis of the kidney are called renal papillae. The term renal papillitis has been used in referring to pathologic conditions in the renal papillae which may be the cause of hematuria. In cases of so-called essential or idiopathic hematuria changes in the tips of the renal papillae have been described which are characterized by engorgement of the capillaries, and in some cases the lesion apparently is secondary to a chronic localized infection. In many cases of bleeding of this kind there is no infectious element present, however, and the bleeding seems to result from an angiomatous condition in the renal papillae which extends into the calices and the renal pelvis.

Acute and chronic pyelonephritis, either ascending or descending, will involve the renal pelvis and the adjacent tissues with a resulting renal papillitis, but this condition would be coincident with infection in other tissues of the kidney and under such circumstances would not be considered as a separate clinical entity.

Renal papillitis as a cause of so-called essential hematuria frequently responds to applications of silver nitrate by means of pelvic lavage.

NAIL BITING IN ADULTS

To the Editor:—I am the examiner of the Women's Department of a large industrial concern. I have found that approximately 5 to 8 per cent of the applicants for work chew their finger nails. What is the significance of this? Does it indicate a type of mental instability due to stress and strain of the times?

M.D., California.

ANSWER:—Nail chewing or nail biting is an expression of a strained, tense and uneasy emotionally unstable state. It is one of several forms of motor discharge of inner tension or panic. It probably starts in childhood and continues in some form through adulthood. The stress and strain of present world affairs would have a tendency to increase the habit but not start it for the first time in an adult. The involved persons are emotionally unstable, but they are not psychotic. It is a difficult habit to overcome.

PROGESTERONE ADMINISTRATION AND PREGNANCY TESTING

To the Editor:—Would you kindly advise if the administration of 5 mg. of progesterone daily for seven days intramuscularly could produce a positive Aschheim-Zondek test (Friedman modification) in a nonpregnant woman?

Herbert Berger, M.D., Beaufort, N. C.

ANSWER:—It is not likely that the administration of 5 mg. of progesterone daily for seven days would produce a positive Aschheim-Zondek test in a normal woman.

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THERAPEUTIC INJECTIONS IN PAINFUL MUSCULOSKELETAL DISORDERS

WITH SPECIAL REFERENCE TO THE
SALINE-PROCAINE TEST

OTTO STEINBROCKER, M.D.
NEW YORK

Analgesic therapy with procaine hydrochloride and numerous other substances is being widely employed in a variety of painful disorders and has established its effectiveness in many of them.¹ Its field of usefulness has been steadily extended recently, particularly in acute and chronic musculoskeletal conditions—fibrositis (myositis), bursitis, neuritis and some arthritides.² Although every practitioner or student of these diseases must encounter some apparently suitable patients whose stubborn symptoms fail to respond to procaine or alcohol block, confusing differences in therapeutic results have been recorded by various investigators. The mere insertion of a needle somewhere in the region of pain, without introducing analgesic solutions, also has been reported to give frequent lasting relief.³

For the past several years I have been interested in ascertaining the causes of these discrepancies.⁴ Naturally, a small percentage of technical failure is inherent in procedures which must be applied deeply and by precise methods, subject to the unpredictable variations of anatomy and tissue response. My purpose in this discussion is to emphasize some of the factors, apart from technic, that I have observed to present obstacles to effective analgesia, as well as sources of dramatic response to simple control measures.

DIAGNOSIS AS A SOURCE OF FAILURE

In therapeutic analgesia especially, correct diagnosis is a necessary prerequisite for successful treatment. The anesthetist or therapist is often asked to treat patients with a diagnosis already made. Unless the underlying condition is identified and exactly localized, however, the treatment is apt to prove ineffective. When the first and second sacral nerves are blocked for a "sciatica" which is actually a lateral cutaneous neuralgia, supplying by the 1st and 2d lumbar nerves, a disappointing outcome is inevitable.

From the Arthritis Clinic and Medical Service, Fourth Division, Bellevue Hospital, Dr. Charles H. Nammack, director.

1. Rovenstine, E. A., and Wertheim, H. M.: Present Status of Therapeutic Regional Analgesia, *New York State J. Med.* 42: 123, 1942. Steinbrocker.

2. Good, M.: Five Hundred Cases of Myalgia in the British Army. *Ann. Rheumat. Dis.* 2: 118, 1942. Travell, J.; Rinzler, S., and Herman, M.: Pain and Disability of Shoulder and Arm: Treatment by Intramuscular Infiltration with Procaine Hydrochloride, *J. A. M. A.* 120: 417 (Oct. 10) 1942. Young, D.: Effects of Novocain Injections on Simulated Visceral Pain, *Ann. Int. Med.* 19: 749, 1943. Steinbrocker, Rovenstine and Wertheim.

3. Brav, E. A., and Sigmond, H.: The Local and Regional Injection Treatment of Low Back Pain and Sciatica, *Ann. Int. Med.* 15: S40, 1941.

4. Steinbrocker, O.: Arthritis in Modern Practice, Philadelphia, W. B. Saunders Company, 1941, pp. 411-414; Some Factors in the Results of Analgesic Injections in Painful Musculoskeletal Disorders, *Pan-American Rheumatism Bull.* 1: 242 (July) 1944.

In several instances I have seen a subdeltoid calcification properly but unsuccessfully infiltrated with procaine for shoulder pain. The patients presented other points of tenderness that had not been sought, or were overlooked, because the x-ray film showed a calcified deposit under the tender skin first palpated. Obvious findings, such as calcified tendons or bursae, osteoarthritic spurs or other musculoskeletal changes should not be accorded undue importance without a complete investigation and evaluation of the history and signs as a whole. Cutaneous hyperesthesia must be distinguished when present and mapped out in its entirety, if it is not to mislead one. In the complicated problem of intractable pain, diagnosis and localization of the source of symptoms require thorough, detailed examination and correct interpretation of the medical and neurologic data. An opinion from related specialties often is required.

SUBJECTIVE COMPLAINTS WITHOUT OBJECTIVE SIGNS

Although functional disturbances may be characterized by complaints not associated with definite objective signs, occasionally organic lesions too produce symptoms without localizing features. Injuries or inflammation of deep structures not accessible to palpation and unaccompanied by referred skin hyperesthesia, muscle tenderness or spasm, or limited mobility may yield no significant information to the examiner. Radiating or referred pain from a radicular or soft tissue process may be described in characteristic anatomic distribution unassociated with objective evidence of the site involved.

The only indication of the seat of trouble may be the patient's repeated and unvarying description of the type and distribution of pain. Lesions in a tendon, joint capsule or periarticular tissues may provoke pain only during certain movements. This information may be the sole clue to the source of symptoms. In these cases local analgesia can be carried out only as unguided, unpredictable therapy, since a tender site of attack cannot be demonstrated. As an index to the value of analgesic treatment in such situations, regional diagnostic block with saline solution, then procaine, is indicated, such as brachial plexus block for the painful shoulder, paravertebral or epidural injection for sciatica.

On the whole, in patients not presenting objective, localized signs susceptible at least to evaluation by local or regional saline and procaine injection, particularly in unstable individuals, analgesic therapy is fraught with uncertainty. In my experience, even when an organic lesion appears to be the basis of the subjective complaints, the lack of exact, localizing evidence forecasts a doubtful outcome for therapeutic injections.

HYPERSENSITIVITY TO PAIN

A common source of discrepancy in the diagnosis and results of pain therapy is the hypersensitivity of some persons to unpleasant stimuli. This phenomenon

has long been recognized as a factor in painful symptoms requiring evaluation before any treatment is considered. If a patient is found to have a low pain threshold, drastic treatment for localized complaints should not be undertaken hastily. A simple test, sometimes enlightening, consists in pressure over the mastoid tips (Libman⁵). In many hyperesthetic and neurotic patients it provides an index to excessive reactions. Instrumental methods have been devised to detect these subjects so that painful complaints may be properly assayed.⁵ Employing some of the aforementioned means, it has been determined recently that the majority of healthy persons show normal sensitivity to pain, while there occurs an approximately equal frequency of hyposensitivity (17 per cent) and hypersensitivity (18 per cent).⁶ Women displayed lower pain thresholds than men.⁷

Generalized dermal or deep hyperesthesia to ordinary palpation is a not unusual finding among senile, frail or fatigued subjects, in obese females and during the course of many systemic diseases, endocrine and nutritional deficiencies. It is often encountered also in anxiety states and in emotionally unstable persons. Since palpation of the painful part is an important sign on which great reliance usually is placed, its significance is doubtful in hypersensitive patients unless palpation of the opposite, corresponding area of the body shows a decidedly lesser reaction. When generalized or extensive abnormal sensitivity to ordinary or uncomfortable stimuli is demonstrated, useless and ineffective therapy must be avoided (case 1).

CIRCUMSCRIBED CUTANEOUS HYPERESTHESIA

Regional cutaneous hyperesthesia occurs frequently arthritis, bursitis, fibrositis (myositis) and neuritis, but it is also found in functional disorders.⁴ Its recognition and proper interpretation constitute an important step in the diagnosis and localization of the lesion in many cases. Palpation of a tender portion of skin, without observing the dermal hypersensitivity, obviously must result in false deductions as to involvement of the underlying structures. Diagnostic or therapeutic block under such circumstances often proves misleading and appears to account for many failures. I have observed avoidable disappointments of similar origin in patients subjected to radiation therapy, physical therapy and other treatment for painful disorders.

The recognition and demarcation of any skin hyperalgesia are of great importance in these conditions for two reasons: First, when unduly extensive cutaneous hypersensitivity is noted or if it is of patchy, disconnected or inconstant distribution, it may present the first clue to the psychogenesis of the disorder (case 2). In these patients tenderness to palpation of the "uncomfortable" area is found by routine examination. When, however, the skin in this locality is pinched or scratched with a pin, hyperesthesia is usually elicited.⁴

In many such persons the reference of pain is merely a conversion phenomenon associated with localized or widespread cutaneous hyperesthesia. Although intradermal salt solution is not anesthetic, a saline wheal produces relief of the previous tenderness to pressure

in some such persons. In many other neurotic subjects who give a correct response to the saline solution an adjacent procaine wheal with its sense of numbness is followed by definite or complete relief of hyperesthesia and pain beyond physiologic possibilities.⁸

Another way in which dermal hyperesthesia may prove useful is in more accurate localization of a variety of somatic lesions. The hyperesthesia may arise as a symptom in a pattern of pain and soreness appearing at a distance from the site of origin, as in fibrositis about the shoulder or in intercostal neuralgia.⁹ Thorough examination of the tender zones reveals the true source of the signs and symptoms, and possibly the truncal or segmental distribution of the soreness to palpation. Intracutaneous injection of the outlined tender skin with procaine eliminates the superficial hyperesthesia when pressure is again applied over the spot. The persistence or absence of deep soreness to palpation now becomes reliable evidence as to whether the underlying muscle or other structures are also tender.¹⁰ Instead of procaine solution, ethyl chloride spray can be used to anesthetize the tender skin for diagnostic purposes. In some cases when a limited area of dermal hyperesthesia is noted it is possible to pull aside the loose, tender skin and to palpate deeply over the normal skin, now brought to the original site, to determine any underlying soreness.

The differential diagnosis of localized cutaneous hyperalgesia is beyond the scope of this discussion. It must be emphasized, however, that visceral and neurologic disease must be excluded. Such hyperesthesia may characterize lesions of the brain (notably the thalamic syndrome), spinal cord (posterior columns) and peripheral nerves.¹¹

PSYCHOGENIC DISTURBANCES

The greatest source of diagnostic error and unpredictable response to analgesic therapy are the psychalgias. It is accepted that psychogenic disorders often are accompanied by diffuse, varying musculoskeletal symptoms not following any consistent anatomic distribution. Hypoesthesia or anesthesia of parts is a classic sign. Tenderness is elicited in some of these cases, but it is likely to be inconstant in degree and location, nor does it conform to any truncal or segmental pattern. The protean but typical complaints are so widely recognized that patients with this form of disorder are not apt to be subjected to analgesic block.

In contrast to the foregoing type of functional manifestations, I have encountered more frequently than is generally appreciated those psychogenic disturbances which are converted into a peripheral, circumscribed and "painful" syndrome closely simulating neuritis, bursitis, arthritis and fibrositis. This type of hysteria or of painful neurosis is more likely to be referred for analgesic therapy and contributes many of the unsatisfactory results (case 3). Diminished or absent corneal and pharyngeal reflexes are often associated.

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6. Hollander, E.: A Clinical Gage for Sensitivity to Pain, *J. Lab. & Clin. Med.* 24: 537, 1939. Wolff, H. G.; Hardy, J. D., and Goodell, H.: Studies on Pain, *J. Clin. Investigation* 19: 659, 1940.

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Skin hyperesthesia of the part occurs frequently. Deep points of tenderness to palpation without skin hyperesthesia are sometimes found and may be accompanied by muscle spasm. Disuse atrophy is not uncommon, and disability may be severe and of long standing. Despite the limited function, some patients may show a striking absence of tenderness. The underlying emotional imbalance usually is so well masked as to evade recognition without the most delicate and searching questioning.¹² Alert, sympathetic and well directed history taking suggests or reveals the psychogenesis of the "painful" and disabling complaints. The response to the saline-procaine test frequently proves confirmatory.

It must be emphasized, however, that the diagnosis of a psychosomatic disturbance, neurosis or hysteria should not be made "by exclusion" in obscure, painful affections merely because some definite organic cause cannot be established.^{12a} There still exist painful disorders in which the basis eludes the most careful investigation, at least for a time, as for example in some early lesions of malignant metastases or of nerve involvement.¹¹ A functional diagnosis, therefore, should be based on a distinct pattern of personal history and its relation to the symptoms and signs. When any doubt arises, neuropsychiatric consultation is indicated.

Sometimes pronounced organic disease is complicated by neurotic features. The latter may have existed previously in mild form or they may represent latent tendencies aggravated or precipitated by the severe musculoskeletal lesions, particularly when these remain chronic and unresponsive.¹³ In such cases the evaluation of symptoms rarely becomes a serious diagnostic problem. On the other hand, some patients present definite but minimum evidence of organic changes at the site of pain, such as roentgenologic signs of osteoarthritis of the spine. Associated with the meager objective findings are symptoms so stubborn and disproportionate that a predominantly functional basis is suspected. Evaluation of the somatic and psychic components in the complaints may pose a delicate clinical problem. The patient then, by all therapeutic means, should be given the benefit of the doubt. Even when the psychogenesis of the symptoms is not clearcut at first, conflicting or extreme response to analgesic therapy may provide revealing information (case 4). The saline-procaine test is a useful preliminary here.

Among patients in this group the reaction to treatment is extremely variable, depending on the severity of the neurosis and on individual suggestibility. In many of the mild psychogenic disturbances, therefore, a seemingly satisfactory response may be elicited by even a simple but impressive procedure, whether it is the mere prick of a hypodermic needle at the site of pain or the actual injection of medication. More deeply rooted psychoneuroses in less suggestible subjects prove refractory to procaine or alcohol block.

I have given some of these patients courses of saline injections with "better" results than anything in the gamut of therapy they had run. While such placebo therapy seems curative of some psychogenic com-

plaints, if the patients are followed long enough the symptoms often are seen to recur or to be transferred to another organ or peripheral area (case 5). In the same way following apparently successful nerve block or other analgesic therapy, the complaints are apt to return sooner or later in many of these individuals.

In the diagnosis and evaluation of therapy in painful disorders it is sometimes stated that the previous unsuccessful treatment of whatever variety proves the organic intractable nature of the ailment and constitutes a form of control for any further therapeutic procedures. My experience does not confirm this point of view. The soundest approach to the medical study of these patients, in my opinion, requires the use of control methods which are technically and psychologically analogous to the therapy given, such as saline infiltration at the site of pain or treatment as a preliminary to the therapeutic block.

THE SALINE-PROCAINE TEST^{13a}

The saline-procaine test offers a simple, frequently valuable diagnostic aid in these cases. When used routinely, more satisfactory selection of cases for analgesic therapy and more dependable results should follow. This procedure is employed only when palpable tenderness is a feature of the complaints, as in neuritis, fibrositis (myositis), bursitis and some articular disorders. The saline-procaine test consists in the consecutive injection of isotonic sodium chloride and procaine solutions at the site of soreness elicited by palpation, and the judicious evaluation of the patient's response. In some subjects injection of either of these substances may give sufficient confirmation. The proper combination of saline and procaine infiltration, however, often yields diagnostic information otherwise not readily obtained. Of course this procedure does not constitute a precise, specific reaction and, at best, can serve only as an aid to clinical judgment in the evaluation of symptoms.

The saline-procaine test is performed essentially in the same way in all peripheral painful conditions. The presence of overlying skin hyperesthesia having been excluded, the point of maximum tenderness is located, or a trigger point may be found. After a skin wheal has been made with procaine solution over any of these points, it is penetrated with a needle and 2 to 3 cc. of isotonic solution of sodium chloride deposited subcutaneously. The spot is palpated again in ten to fifteen minutes.

When the symptoms continue after the saline infiltration, a needle (22 gage, 1½ inches) is directed through the skin wheal until the original pain is reproduced, as happens at a trigger point.¹⁴ More often, I find, the pain is not duplicated. Then the needle is advanced at the center of the tender area to a reasonable depth where 5 to 10 cc. of the procaine hydrochloride (1 per cent) solution is injected.

The hypodermic use of saline solution as a control test of the veracity of painful complaints is too well known for discussion. Local or regional saline injection at the site incriminated by the patient or at the point of maximum tenderness offers a more effective approach. It should constitute the first step in care-

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fully conducted treatment of certain acute and chronic, painful conditions (cases 3 and 5). These procedures assist in the understanding and detection of functional disorders which respond dramatically, frequently relapse or prove entirely refractory, whether procaine injections, alcohol block or other analgesic measures are employed. Following saline infiltration psychogenic disorders frequently are verified by immediate relief of symptoms—absence of the former "pain" and tenderness to palpation as well as alleged uncomfortable or limited mobility. Of course, failure of a patient to be influenced by this procedure does not exclude a psychogenic basis for the symptoms.

The supplementary use of procaine injection, when it affords relief to a patient uninfluenced by saline infiltration, usually confirms the somatic basis of the complaints. This response is evidenced by moderate to complete abolition of pain, tenderness to palpation, uncomfortable mobility of the part and other positive signs within ten to fifteen minutes (case 6). Sometimes a functional disturbance reacts normally to these substances. Under further observation with analgesic injections, however, the complaints return as soon as the suggestive influence of the new line of treatment no longer prevails.

When neither saline nor procaine solution is effective, provided the involved tissues are not beyond reach of the medication, a severe conversion syndrome or malingering is strongly suggested (case 7). Unless the basic emotional conflict happens to be resolved during the course of treatment, in the latter cases parenteral injections are likely to prove useless eventually even as a form of psychotherapy (case 4). Neuropsychiatric consultation and intensive psychotherapy are indicated.

The following representative case histories illustrate the observations that have been made. Although a thorough physical and laboratory study was carried out routinely, only essentials are mentioned.

REPORT OF CASES

CASE 1.—*Extensive hyperesthesia in anxiety neurosis simulating brachialgia.*

E. R. was seen because a brachial plexus block was recommended for her painful shoulder. She was a bedridden, decompensated cardiac patient who had complained increasingly of pain in the left shoulder region accompanied by tenderness and limited mobility apparently of very troublesome severity. The cardiac status had been improving, nevertheless, according to clinical signs and laboratory data. Locally there was exquisite tenderness to palpation in the left neck area and about the shoulder, as well as the restricted mobility of the extremity for which the block had been suggested.

Examination of the part seemed to confirm the impression that a circumscribed, painful disability was present. On complete investigation, however, extensive hyperesthesia on one side of the body was found. The corneal and pharyngeal reflexes were almost absent. Questioning of the patient disclosed a deep apprehension over her prognosis and at the prospect of going home, where little or no care was available. Assurance was given that the pain would leave her and motion of the extremity return. The complaints soon subsided and the widespread hyperesthesia had disappeared when the patient was discharged. On a subsequent admission the same series of symptoms developed and responded similarly without analgesic therapy.

CASE 2.—*Conversion hysteria simulating a somatic disorder with multiple, extensive skin hyperesthesia.*

H. D., a mechanic aged 48, entered the hospital for severe pains in the left flank. The pain had existed for about two

months but became acute and disabling in the past few days, according to the patient. A language difficulty made a detailed history difficult to obtain. General examination was unrevealing. Locally, tenderness and muscular rigidity to palpation were elicited in the left upper quadrant of the abdomen as well as at the left flank and at the left costovertebral angle. Some tenderness was found in the left lower quadrant too. Accordingly, on admission, an acute renal lesion with urinary retention was suspected. Later a lumbar myositis was considered.

Examination revealed the tenderness already noted. In addition similar soreness to palpation was demonstrated over the right sacroiliac and gluteal areas. Skin hyperesthesia was exhibited to pinch and scratch tests in all of the tender regions. It extended from the 8th dorsal vertebra on the left side to the upper gluteal area around the left side of the abdomen, particularly in the upper half; also in the right sacroiliac and gluteal areas. The widespread cutaneous hypersensitivity and its multiple distribution suggested a functional basis. The corneal and pharyngeal reflexes were absent. Intradermal infiltration of 2 cc. of intracaine solution abolished the tenderness at the site of injection, where deep palpation no longer provoked any tenderness.

X-ray films of the spine, as well as other relevant data, were negative. A detailed history revealed that the patient lived with his son, with whom he was in constant and violent disagreement. Their repeated quarrels were punctuated by alcoholic bouts. Sedation was prescribed. The patient was kept under observation for sixteen days, during which time the symptoms subsided. He was referred to the Mental Hygiene Clinic.

CASE 3.—*"Neuritic" symptoms responding to local saline injections.*

Mrs. T. R. was referred for a painful hip with troublesome pain radiating along the anterior surface of the thigh. The complaints had lasted about seven months. One month after onset the patient consulted a gynecologist. A fibroid uterus was found, and a hysterectomy was performed. The symptoms were somewhat relieved for several weeks after the operation, but they became increasingly severe thereafter.

On examination the only objective findings were localized tenderness in the inguinal area, which was the most troublesome to the patient, and some deep soreness to palpation in the right femoral region without skin hyperesthesia. The x-ray films were negative. A femoral neuralgia was suggested. As a preliminary to treatment, through an intracutaneous procaine wheal 5 cc. of salt solution was deposited subcutaneously at the inguinal tender area. Within a few minutes the tenderness to palpation was almost completely absent.

On close questioning it was brought out that the patient was greatly concerned over her husband's behavior toward her. She received two similar injections three days apart, with almost complete relief of all symptoms. One week later she returned with severe pain, which came on after a friend warned her of seeing her husband having dinner with a strange woman. She did not "dare risk finding out the awful truth" by discussing the matter with her quick tempered husband. She was urged to reserve any conclusions until she had a frank talk with him.

The patient returned in a week in a happier frame of mind as the result of a satisfactory explanation which proved her suspicions completely unfounded. There was still just a slight pain, for which she requested treatment until it was "absolutely gone." Three additional subcutaneous injections of saline solution were given. On checkup three months later, the patient had remained free from any symptoms.

CASE 4.—*Conflicting and extreme response to analgesic injections in a conversion syndrome.*

Mrs. R. N. was referred for block of the 12th dorsal and 1st lumbar nerves for inveterate neuritis. Palpation did elicit discomfort approximately in the distribution of these nerves. Tenderness of the lower abdominal wall was striking. Pain and soreness were said to have persisted intermittently for about twelve years. Two abdominal operations had been performed for complaints associated with the pain. The 12th dorsal and

1st lumbar nerves were injected paravertebrally with 5 cc. of procaine hydrochloride. That evening the patient reported the first complete absence of pain in several years.

Three days later, when she returned for further treatment, owing to the excessive response the procedure was repeated without change. The patient reported after the same interval that her pain was worse than ever. Accordingly, when she appeared again in several days her emotional status was carefully investigated. She soon launched into a tearful story of emotional conflict due to the infidelity of her husband. For years these emotional disturbances evidently had produced conversion symptoms. The patient was returned to her physician for psychotherapy. Three months later she was reported to be completely free from pain following the start of legal action to solve her domestic problem.

CASE 5.—Psychosomatic disturbances in a patient with organic changes.

L. R., a widow aged 51, was returned to the arthritis clinic for low back strain related to an old arthrodesis of the left hip. Examination had disclosed localized tenderness over the left sacro-iliac joint apparently aggravated by motion of the left lower extremity and by flexion tests. The patient's record in the outpatient department consisted in attendance at a number of different clinics for a variety of complaints. For her diffuse pains of many years' duration, and the osteoarthritic joint changes seen in her x-ray films, she had been referred finally to the arthritis clinic. At that time her complaints were not located in the low back.

She had then received two courses of high voltage x-ray therapy for her osteoarthritis, several courses of physical therapy with different modalities and a variety of medication, including regular parenteral estrogenic therapy with large doses of diethylstilbestrol. Study of the patient and her medical history convinced me that the vague shifting musculoskeletal symptoms, associated at times with similar visceral complaints, were related to the anxiety state which she exhibited. A series of subcutaneous injections of isotonic solution of sodium chloride twice weekly gave her sufficient "relief" to discontinue treatment.

The new complaint of acute back pain over the left sacro-iliac joint appeared about one month after her last visit to the clinic for saline injection. The location of the latest pain and the circumscribed tenderness adjacent to an old incompletely fused hip with its shortened extremity made an almost convincing picture of sarolilac strain.

In view of the patient's background and the exquisite cutaneous hyperesthesia which accounted for the tenderness elicited by all the examiners, a subcutaneous saline injection was given as a preliminary to analgesia. Within five minutes the local tenderness was gone and uncomfortable mobility of the extremity was abolished.

The patient returned two weeks later, when she stated that she had experienced two days of complete relief from her symptoms. The discomfort recurred then in "mild" form and gradually disappeared. At this time the left low back was no longer troublesome, but pain and tenderness had developed on the right side at a corresponding location. Following a subcutaneous injection of saline solution the complaints and signs again vanished within five minutes. The patient had been referred previously to the Mental Hygiene Clinic, and a similar disposition was again made.

CASE 6.—Somatic pain with typical response to saline solution and procaine.

M. F., a woman aged 40, married, a business executive, came in for relief of pain in the right deltoid area of sharp, burning character. The pain began eight months earlier following a hypodermic injection by a hospital nurse the day after a hysterectomy for a fibroid uterus. The patient experienced an ache at the site of injection immediately, and it continued to appear intermittently for four months with increasing and longer lasting severity. During the four months before presenting herself, the pain had become more or less constant. It had begun to be

associated with sharp and burning radiation along the radial border of the extremity to the outer fingers of the hand. In the past month the patient had noticed that she was favoring the extremity, so that there was great limitation of the amount of work done with the arm. Insomnia due to pain had become troublesome.

The patient seemed to be happily married and enjoyed her work. She displayed a calm, cheerful disposition. The only abnormality was found at the lower deltoid area. There a circumscribed, deep point of tenderness to palpation by the finger tip was elicited. Pressure at this tiny point provoked exquisite soreness and reproduced some of the uncomfortable radiation. Infiltration of saline solution (2 cc.) subcutaneously gave no response. Deep injection of saline solution (2 cc.) provoked soreness, and the tenderness to palpation remained. In ten minutes 5 cc. of procaine hydrochloride solution (1 per cent) was introduced at the same depth. Ten minutes later the tenderness had disappeared. The patient was comfortable for two days. Three similar injections of 10 cc. of procaine solution at intervals of four to seven days were followed by complete relief of complaints and disability. The patient has remained symptom free for eleven months.

CASE 7.—Unresponsiveness to procaine at a "tender" site in a compensable disability.

H. G., a tailor aged 64, had been treated for atypical rheumatoid arthritis of the right wrist, which subsided without demonstrable residual change. He returned to the clinic for a painful shoulder of two months' duration. Moderate limitation of extension and posterior rotation seemed to exist. Almost complete, but apparently uncomfortable, passive motion could be carried out. No atrophy was noticeable. Deep tenderness was elicited in the coracoid area. X-ray films of the shoulder were negative, but the cervical spine showed moderate osteoarthritic changes.

The patient had received medication and a course of physical therapy without relief, he stated. Local injection of isotonic solution of sodium chloride at the tender site was ineffective. Deep injection of 10 cc. of procaine hydrochloride did not influence the pain and tenderness. Repeated local injections of large quantities of procaine, brachial plexus block via the supraclavicular and scalenus routes and injection of the scalenus muscle failed to affect the symptoms.

These procedures were used at weekly intervals for two months, when it was decided to review the history and to repeat the general physical examination. In the course of getting a more detailed history it was established through a chance remark of the patient that he had been receiving disability compensation and that it would be available for another month. It was his sole source of income. He was told to return in two months if his symptoms were still present. He did not return.

SUMMARY

The results of therapeutic analgesic injections and other methods of treatment for intractable pain depend on a number of factors, apart from technic. Among these are:

1. Correct diagnosis and localization of the source of pain.
2. Selection of suitable patients by excluding those with only subjective complaints, unless regional diagnostic block is effective.
3. Recognizing hypersensitive individuals, psychogenic disturbances (painful neuroses, conversion syndromes) and evaluating response accordingly.
4. Detection and proper interpretation of cutaneous hyperesthesia.

The saline-procaine test is recommended as an aid in the diagnosis and selection of patients suitable for therapeutic local and regional injections

THE PHYSICIAN'S OPPORTUNITY TO HELP OLDER PEOPLE

E. V. COWDRY

ST. LOUIS

Peru, under the Incas, was the first great American socialistic state. Food production and labor were controlled in the interest of the whole, and age levels were recognized for males. Those over 50 were not required to pay taxes or to do any work, while the privilege of men over 60 was to sleep as much as they liked. The females were ignored.¹

In our country a very different solution is being worked out. Instead of encouraging irresponsibility, idleness and consequently early death of the aged the policy is to promote responsibility, activity and the will to live. But the socially useful services performed by them must be adjusted to their changing capacities. In doing this doctors must play the leading role.

The chief obstacle is the power of the old age taboo. Some young people hate to think of the aged, are even uncomfortable in their presence. They would rather remain ignorant of the adjustment to advancing years than be informed. Physicians are for the most part silent, despite the fact that many are well advanced in years. In 1930, 10.2 per cent of physicians were 65 years or over, while 10.8 per cent of clergymen were in the same category.² So strong is the avoiding impulse that it is not easy to obtain a hearing on the problems of aging. Yet it is a task not without interest to weigh the available evidence and to try to visualize the increasing opportunities for service by the medical profession.

RISE TIDE OF AGED

Because the rising tide of the aged in our population is gradual we may not quite realize its volume. Pediatricians are among those most alive to this change. Since they deal with the upswing of life they are also interested in the downswing, in which some curiously similar phenomena are manifest in the reverse order.

The percentage of individuals in the upswing, that is up to 19 years of age, was 34.5 in 1940. The percentage predicted by Thompson and Whelpton for 1970, twenty-six years hence, is only 27.3. Consider now the downswing, persons of 45 years and over. It is expected that these will increase from 25.5 per cent in 1940 to 37.7 per cent in 1970.³ Evidently the numerical opportunities as to patients of the pediatricians presiding over the upswing are decreasing; while those of the geriatricians, charged with the downswing, are increasing.

It is a fact that in the brief space of ten years from 1930 to 1940 the number of people 65 years old and older in the United States increased 2,322,401. This is more than twice the number of men, women and children in the state of Oregon, the total population of which was 1,089,684 in 1940. Moreover, the percentage of the whole population of individuals in this age group in 1940 was predicted in advance as likely

to be 6.3. When 1940 rolled around the percentage was found to be 6.8. This gives confidence in the conservative nature of the predictions.

Aside from this relative and absolute increase in the number of older people, there is another consideration which may have bearing on the age of many seeking medical aid. As before, veterans of all kinds will be treated with great generosity, and provision may be made for their free medical care in federal institutions. In his annual report (Jan. 13, 1944) Brigadier General Hines, Administrator of Veterans Affairs, states that the accredited U. S. military population consequent on this war is expected to be 14,271,720 and that 300,000 hospital beds will be required. Evidently most of these millions will be in the age group 20-45. If they are to be treated free by Uncle Sam; and many avail themselves of this privilege, the percentage of persons relying on private practitioners who are 65 and more will not be a little over 6.8 but will be for some years considerably greater because so many of the younger ones will be cared for by the government.

INCREASING PROPORTION OF WOMEN

It is likely that most of these old persons will be women. Figures presented by Dublin show that in 1939 the expectation of life for all decennial ages was greater for white females than for white males and the mortality rates lower. Doubtless the reasons are many; but it is to be expected that the adjustment which must be made on retirement weighs very heavily on men. From the status of employers, even though it may be in but a small way, they return to the home and become employees. The women, on the contrary, do not suffer uniformly such a sudden change. Most of them continue as employers in the familiar home environment with only gradually tapering authority—a difference that should not be lightly passed over.

The 1940 U. S. Census shows that in the past decade the excess of males over females suffered a particularly sharp decline. It was 2,692,288 in 1910, 2,092,242 in 1920, 1,500,114 in 1930 and 453,919 in 1940. The hope expressed in some quarters that the supposedly greater production of boy babies in wartime will operate temporarily to stem the decline in males is probably without foundation. The ratio of boy to girl babies born in the St. Louis Maternity Hospital has been for many years 105:100. No increase on the male side has taken place. There is, however, another factor which will decrease the proportion of males seeking aid from private physicians. It is that a steadily increasing percentage of males will in all likelihood avail themselves as veterans of medical service provided by the government.

MEDICAL SERVICE OF THE AGED IS PARTICULARLY EXACTING

No one will question the fact that it is more of a task adequately to look after 100 aging patients of 65 and over or even of 45 plus than it is an equal number of adults 20-45 years of age. In attempting to estimate the difference, several points stand out.

It has been wisely said "that the boy is not a little man." It is equally true "that the senile is not simply an old man." He is practically another person gradually reconstructed in the same general form and must be treated as such. Certainly most of his structural materials have been replaced, some of them repeatedly.

Read before the Portland (Ore.) Academy of Medicine, March 10, 1944.

From the Anatomical Laboratory, Washington University, and the Barnard Free Skin and Cancer Hospital, St. Louis.

1. Wissler, C., in Cowdry, E. V.: *Problems of Ageing*, Baltimore, Williams & Wilkins Company, 1942.

2. Miles, W. R., in Stieglitz: *Geriatric Medicine*.

3. Dublin, L. I., in Cowdry's *Problems of Ageing*.

The whole trend of recent studies with radioactive isotopes, as well as with substances tagged in other ways, is to show the wide extent of this replacement. It is true that some individual cells live for a long time, but we may look to the time when replacement of their constituents will also be proved. Perhaps the greatest burden is failure regularly to get rid of aged elastic fibers and systematically to replace them with new ones.

The senile is also of smaller size, owing to atrophy. Some of his tissues are made up of fewer cells (nervous system), others show localized hyperplasia (skin), while still others are hypertrophied (prostate, arteriolar walls). He works with a different background of experience under higher blood pressure and at a lower metabolic rate. He is handicapped by decreasing efficiency of homeostatic mechanisms and by maturing nutritional deficiencies and excesses and probably by tissue ischemia. A new concept is the idea that his tissues do not merely dry up with the advancing years but tend to become waterlogged.⁴

Among the aged there is greater diversity than in earlier life because hereditary traits and internal and external environmental factors have operated for a longer time. Precocious aging of the skin is seen in xeroderma pigmentosum and almost of the whole body in Simmonds' disease and progeria. Delayed aging is exemplified by the 625 gallant veterans of the Union Army, whose average age in 1944 was 97. Because of this diversity the aged must be treated as individuals, not *en masse*. Case histories are always more troublesome to take than those of younger persons, and diagnosis presents many special difficulties.⁵

Since the aged are no longer on the high plateau of efficiency, their abilities are waning. Therefore the problem of physical and mental adjustment assumes greater proportions. Medical guidance must be continuous through the years, just as a single pediatrician should have charge over a growing child until adulthood. But the job is heavier for geriatricians than for pediatricians for the reason that their patients are on the downward path, do not naturally grow out of ailments but progressively tend to get worse. A survey by the U. S. Public Health Service⁶ shows that the percentage distribution of invalidism increases to a peak of 19.1 in the group 65-74 years old, whereas it falls to 10.7 in the 74+ group, which indicates again that the constitutionally rugged tend to survive.

In older persons not only is there more invalidism but the cumulative effects of dietary deficiencies and excesses become manifest, and deaths from cardiovascular-renal disease and cancer dominate the picture. Persons suffering from these conditions require much attention. Geriatricians, more than any other physicians, have to preside over death. This is not pleasant and intensifies the taboo.

And there is the chance of not having one's bills paid. Geriatricians should charge more per patient than physicians caring for younger persons because they should have fewer of them and give more to them. But bills are never paid by persons who do not primarily benefit by the service rendered as enthusiastically as those who are themselves helped. The gratitude of old people is often touching. This, however, is not enough. To

live on a practice in which there are many aged dependent persons is consequently hazardous. The actual extent of dependency has been clarified by a survey of 7,800,000 persons of 65 years and over made by the U. S. Social Security Board. The total number now in this age group is in the neighborhood of 9,000,000, so that the results are significant. It was discovered that 3,480,000 were dependent on friends or relatives, 1,590,000 were supported wholly or partly by public or private social agencies, while only 2,746,000 were financially independent, living on pensions, annuities or savings.

THE CHALLENGE

How is the medical profession going to meet the challenge? It can give leadership instead of simply waiting for things to happen. Indeed it must give constructive leadership or else be forcibly socialized. No university medical school worthy of the name can longer afford to graduate doctors who have not had enough training in geriatrics to appreciate the opportunities in this field and to specialize in it after graduation, if they feel the call, which will depend largely on an enlightened attitude on the part of their teachers. Medical education must qualify doctors to care for the medical needs of the whole population, not forgetting the more than 25 per cent past 45 years old and on the downward path. At present this training is unorganized. The students get a little here and a little there. Too often they drift into the attitude that many of the complaints of elderly persons are imaginary, that with advancing years illness is to be expected, and that this is only natural anyway because one can't prevent aging.

HOW TO MEET IT

Geriatrics should be dignified by special and intensive instruction as in the other divisions of medicine. This means that space should be made in an already congested medical curriculum for a comprehensive course in the subject by reducing instruction in something else, which involves the kind of self denial for which faculties of schools of medicine are not noted.

Hard headed deans are likely to resort to delaying tactics. They will ask the perfectly legitimate question What would be the content of such a course? Setting details aside, there will probably be general agreement that it should give an integrated view of the changes in the body both structural and functional in the downswing of life. It should review the disturbances and maladjustments most likely to develop and the special difficulties encountered in diagnosis and treatment. By the study of cases it well might show how greatly aging people can be helped to make the greatest of all adjustments.

The most practical way to plan the course would be to delegate responsibility to a committee consisting of the professors of medicine, psychiatry and pediatrics and any members of the faculty particularly interested in geriatrics. Geriatricians are likely to develop from internists and general practitioners. Both have a lively understanding of the importance of preventive medicine, and it is in geriatrics that long term prevention should be cultivated. The training in personality development will dovetail with that in psychiatry. Psychology looms large, as does also occupational therapy and nutrition. The advice of pediatricians will be helpful, for the unfolding has much to do with the folding up of the individual, and pediatricians, like geriatricians, appreciate better than others the changing influence of age.

4. Lowry, O. H., and Hastings, A. B., in Cowdry's Problems of Ageing.

5. Mueller-Dehann, A., and Rabson, S. M.: Internal Medicine in Old Age. Baltimore, Williams & Wilkins Company, 1942.

6. Stieglitz, E. J.: Geriatric Medicine, Philadelphia, W. B. Saunders, 1943.

The next question might take the form of a suggestion: Well, why not have an optional course and see how it works? That would hardly be satisfactory. It would leave to individuals to decide whether they will or will not experience a little training in the special medical needs of an increasing fraction of the population, and the old age taboo might operate to reduce the volunteers to the vanishing point.

The final question might be in the nature of a declaration, perhaps with a sigh of finality: You can't find persons qualified to take charge of the course, whether it is optional or required! One must admit a dearth of desirable candidates, but the admission is itself an indictment of medical education. It is for us not to be complacent in their scarcity but to produce them.

Not long ago it became clear to leaders in the profession that psychiatry, which was then far behind that in Europe, should be purposefully cultivated in this country. The Rockefeller Foundation blazed the trail by establishing fellowships in order to train carefully selected individuals showing promise of ability to become key men in psychiatry. It would seem logical to make provision for similar training of geriatricians. Certainly the increasing demand for them is greater, and each could be strategically placed in charge of a course in the regular medical curriculum. Universities, blessed with a vision of all that is involved, might well initiate some such fellowships without outside aid, for the cost would be small. Among the applicants might be a few alert women, for women serve with conspicuous success in the related fields of pediatrics and psychiatry.

But larger funds are needed, because these fellows will have their eyes to the future and will not even accept appointment unless there are enticing opportunities for advancement in research, in the clinic and in practice if they make good. Again we come up against the taboo already mentioned. Public spirited citizens, able to help financially, are simply not interested. When I cautiously broach the question they look at me strangely, answer politely and wonder what's wrong with me. When pressed they quickly change the subject or pass the buck to Uncle Sam and remind me of the federal security act of 1937, under which our legislators are placing millions in the hands of the aged: \$325,000,000 was appropriated for the current fiscal year. They smile when I say that these millions quickly pass into other more nimble hands eager to receive them, and the conversation definitely ends. Aged persons who are poor do need many things, among which one is expert medical care. It would be direct and to the point to see that they get it by earmarking a certain small percentage of the total for payment of doctors' bills and second by using a still more minute percentage to improve the medical service rendered by training in geriatrics and research in our universities.

An attempt is slowly being made to get out of this wilderness. The Josiah Macy Jr. Foundation has blazed the trail. The National Research Council has established a committee on aging under the chairmanship of Dr. William deB. MacNider which could administer research funds and fellowships to advantage, because it is truly national in scope. The U. S. Public Health Service has developed a subdivision of gerontology and has made a detailed survey. In so doing Surgeon General Parran was ahead of public opinion, still unfortunately trying blindly to buy a way out by dispensing

from the federal chest the charity millions referred to supplemented by grants from the several states. Great things are to be expected from the Public Health Service. Let us remember that it was the Surgeon General who recognized the need for better training of cancer specialists and for research on cancer, and that the enabling cancer act advanced by him was unanimously passed by Congress. The medical profession will, I am sure, put its shoulder to the wheel. Standards must be established and maintained. Perhaps we shall soon see an American Board of Geriatrics.

Two factors make the problem acute. There is no doubt that with hundreds of thousands of people shifting their residence from place to place the older ones suffer and become confused. It is clear also that, in the mushroom growth of little houses providing only space for very small families, old persons are being squeezed out. Sociologists and economists and many others are involved. The Old Age Assistance Division of the New York City Department of Welfare already cares for 55,000.⁷

Public opinion must be mobilized and given expression. I should like to see the American Medical Association propose to the Brookings Institution of Washington that they should together survey the problem, bring out the facts, make recommendations and publicize them. If this is not feasible I hope that the Association, with the backing of the National Research Council, will approach some new foundation which is formulating its program and explain the situation to the end that the fundation will dedicate itself to this problem and prepare a report which will lead to unanimous and wise action by Congress and state legislatures. Every man, woman and child in the United States is involved.

The philosopher John Dewey has made a statement which can be considered our social Magna Charta. He says that the basic human problem requires for its solution "changes which ensure first to every individual the continual chance to have intrinsically worthwhile experience, and secondly provide significant socially useful outlets for the maturity and wisdom gained by experience." The continual chance, even in advancing years, to have worthwhile experience can add zest to life and, to make use of this experience for the good of others, can give a feeling of accomplishment. It is the privilege of the medical profession to lead into this promised land.

Scott and Euclid avenues.

7. Lawton, G.: *New Goals for Old Age*, New York, Columbia University Press, 1943.

Epidemics.—Epidemics are like waves: they rise and fall. Sometimes they seem to be spaced at fairly regular intervals of time. Measles seems always to be present in certain places; this persistent unspectacular prevalence is called endemic. Topography and climate seem to have something to do with both epidemics and endemics. We have seen how Hippocrates and, in our own country, Daniel Drake wrestled with this problem. Ophthalmia is traditionally associated with Egypt, malaria with the Mediterranean shores, plague with the East, yellow fever with the tropics of America. Moreover, some diseases spread and become threatening at one season of the year, some at another. Pneumonia is a winter disease, measles seems to reach its peak in the spring, babies die of diarrhea in the hot months, and one fears poliomyelitis most in the late summer. Some diseases, again, fall on people of all ages, some on children, some most severely on the old.—Smith, Geddes: *Plague on Us*, New York, Commonwealth Fund, 1941.

GREASE GUN INJURIES

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Hand injuries caused by the injection of grease under pressure have been previously reported. Smith¹ presented the case of a mechanic who accidentally injected grease under 7,000 pounds of pressure into the volar aspect of the base of the left index finger.

The finger became numb immediately and 4 cc. of thick grease could be expressed from the small wound of entry. The next day the hand became swollen and intensely painful. Under gas-oxygen anesthesia, lateral incisions through the pulp along the middle and proximal phalanges were made and 15 cc. of grease was expressed. Several days later the hand was washed with ether in an attempt to wash out the grease. On the ninth day the finger was so gangrenous that a disarticulation was performed and 45 cc. of grease was milked down from the palm and wrist. The wound eventually healed.

Brooke and Rooke² reported 2 more cases:

1. A man aged 27 injected grease in his finger tip. The finger became numb and swollen immediately. It was given expectant treatment consisting of bed rest, warm soaks and, finally, operative incision. The finger drained some pus for a while until a sequestrum separated and then healed.

2. A man aged 36 injected grease into the tip of the left index finger. The finger became numb, dead white and a little swollen. Grease could be seen down to the middle joint. A small incision was made on the finger tip at the site of the small puncture wound, but no grease could be expressed. On the fourth day the finger became indurated and black down to the terminal interphalangeal joint. It doubled in size on the ninth day with the skin on the plantar and dorsal surface being separated from the underlying tissues by a watery fluid down to the midphalangeal joint. The next day this epidermis was removed, and recovery of the finger slowly took place.

Mason and Queen³ discussed 2 cases which were observed many months after the injury:

1. A man aged 23 accidentally released the pressure while repairing high pressure grease equipment. The grease penetrated some rags and entered the left hand, causing it to become swollen. A pin point perforation was present in the palm just proximal to the web between the index and middle fingers, and a light tan discoloration was present over the area of the swelling. A physician incised the hand at the site of injury and squeezed out as much grease as possible. The incision healed in two or three weeks. A small "boil" developed in one month at the perforation site, and pus (?) was expressed on several occasions. Subsequently hard, tumor-like masses developed at the base of the index finger and up into the palm. These tumor masses and the overlying involved skin were painstakingly excised in toto from the underlying tendon sheaths and digital nerves and vessels. A free full thickness graft was placed in the defect and the wound healed.

2. A man aged 26 had grease blown into the tip of his left index finger from a grease gun accidentally discharged at a distance of 8 inches. Immediate swelling occurred. From a small, dotlike puncture wound on the finger tip some grease was evacuated by the patient. Swelling persisted in the finger and one week later a small incision was made, but no foreign material was expressed. The wound healed in several weeks. One month later the finger tip was slowly enlarging and becoming hard. Six months later the volar surface of the distal phalanx was very hard and enlarged and a few small pitting scars were noted at the distal end of the phalanx. This tumor was removed with the overlying involved skin, and the defect was repaired with a small pedicle graft.

REPORT OF AUTHOR'S CASE

F. C., a white man aged 54, accidentally injected an unknown amount of medium weight truck body grease into his left fourth finger while greasing a truck. Immediate numbness and swelling resulted, and he quickly soaked his finger in warm water. An hour or so later he went to the accident floor of the Boston City Hospital, where a small incision was made on the palmar aspect of the distal phalanx. A small amount of grease was pressed out of the wound, and warm soaks were advised. In the evening of the next day his fingers and palm began to swell. On the third day intense throbbing pain forced the patient to enter the hospital.

Local examination revealed swelling over all the fingers and palm of the left hand. The fourth finger was most involved, with the skin very tense and red. Near the finger tip were two small wounds, one the site of injury and the other the site of the incision. Both wounds were free from exudate. There was a light brown discoloration, apparently subcutaneous grease, scattered in patches over most of the surface of the finger. Anesthesia was present in the finger tip, and motion of the finger was considerably limited.

The patient's temperature was 98.6 F., the pulse rate 70 and the respiratory rate 20.

Examination of the blood showed a white cell count of 7,600 and a red cell count of 4,200,000 with a hemoglobin of

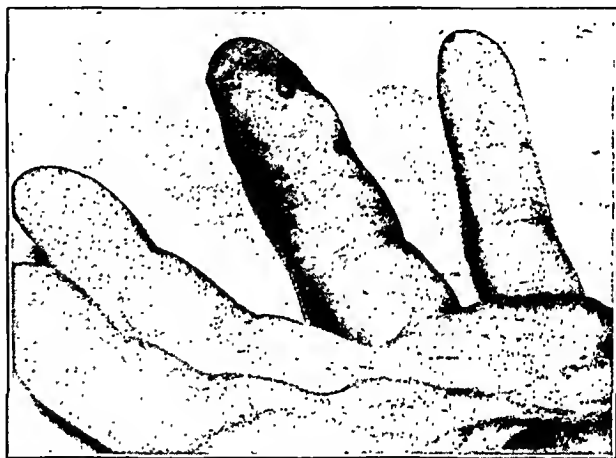


Fig. 1.—Appearance of left fourth finger six days after injury, showing the blue-black discoloration in the distal half. The small wound on which there is a small drop of serum was made in an attempt to remove some of the grease. The other wound is the original site of injury.

80 per cent. The blood sugar was 78 mg. per hundred cubic centimeters, the nonprotein nitrogen 29 mg. The Hinton reaction was negative.

The patient was put to bed, and massive warm packs and codeine were given. On the sixth day of injury the distal half of the finger was blue-black, the middle phalanx was pink and the light brown subcutaneous discoloration was still present (fig. 1).

A scanty purulent discharge appeared at the incision on the ninth day. A visiting surgeon, seeing the finger for the first time and noting the distal black discoloration, commented "I fear that amputation will be necessary." Another surgeon saw the finger the next day and said "I hold no hope for the distal phalanx and little for the middle one."

The finger seemed to improve a great deal about the twelfth day after injury. Much of the redness had disappeared and skin was desquamating, leaving viable skin behind. The areas of previous light brown discoloration had taken on a translucent appearance. The distal portion of the terminal phalanx was black and slightly swollen.

The finger continued to improve during the ensuing weeks until only an area 1 centimeter in diameter on the finger tip was lost. The rest of the finger was pink except for the translucent areas. The entire finger was decidedly indurated, but in spite of this there was only moderate limitation of motion.

About six weeks after the injury the finger had regained its entire range of motion and the translucent areas had begun

From the Third Surgical Service, Boston City Hospital.
1. Smith, F. H.: Penetration of Tissue by Grease Under Pressure of 7,000 Pounds, J. A. M. A. 112: 907-908 (March 11) 1939.
2. Brooke, R., and Rooke, C. J.: Two Cases of Grease Gun Finger, Brit. M. J. 2: 1186 (Dec. 16) 1939.
3. Mason, M., and Queen, F. B.: Grease Gun Injuries to the Hand, Quart. Bull., Northwestern Univ. M. School 15: 122-132, 1941.

may produce spasm in the muscles which control the area and give rise to local, radiating or referred pain. If the irritation is severe or long continued, actual neuritis may develop, with resulting paresthesia, muscle atrophy, circulatory change or actual paralysis. Such

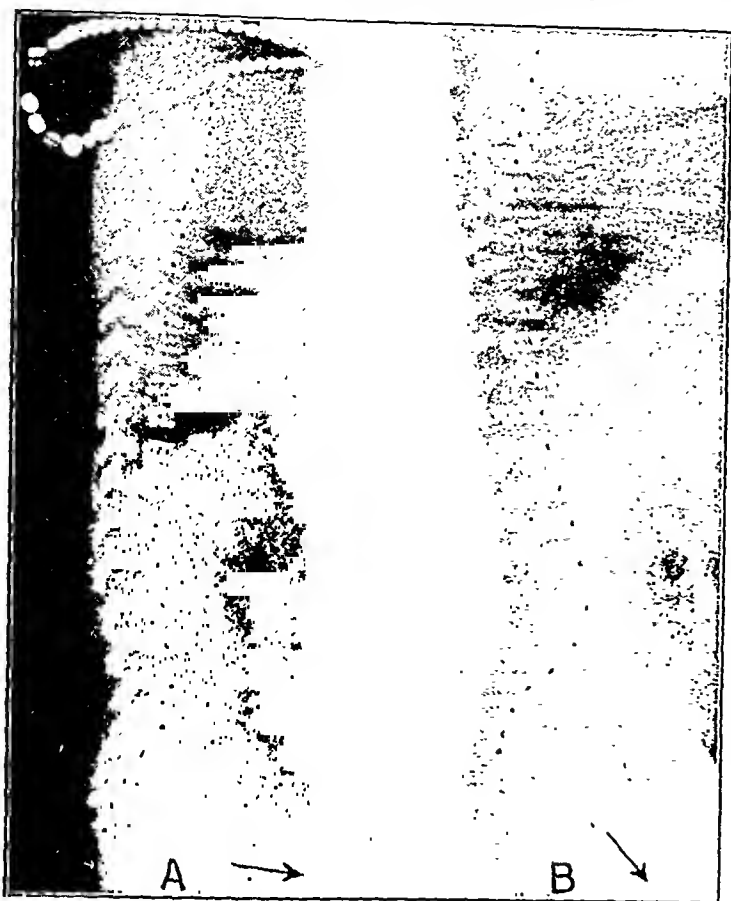


Fig. 1.—Lateral views of the spinal column of a new-born infant: *A*, lying at ease with hips flexed at 90 degrees; note that there is a single thoracolumbar posterior convexity. *B*, with the hips extended to 135 degrees, forming the lumbar forward convexity.

symptoms most commonly involve the distributions of the brachial and sciatic plexuses. Careful analysis will usually lead to the proper diagnosis and localization of the causative factor.

VARIATIONS AND ANOMALIES OF THE BACK

Like all other parts of the body, the spinal column is subject to defects and anomalies of development. The vertebral column was an early invention in zoological evolution, and the suborder of animals characterized by its possession includes such divergent classes as fish, reptiles, birds and mammals. Each class diverging from the parent stem has given origin to many families, genera and species presenting considerable variation in the number of vertebral segments. There is a lesser but frequent variation among individuals of the same species, indicating that the columns are still in a state of flux. Of the columns of the anthropoids, that of man has acquired the greatest degree of numerical stability.

Each human vertebra is formed by the fusion of adjacent halves of two primitive somites and passes through membranous and cartilaginous stages to become bone. At any time during this segmentation and transition there may occur variation in the process, resulting in defective or anomalous development of the segment.

Irregular fusion of the half somites gives rise to hemivertebrae, a not infrequent anomaly. When it occurs there is usually a corresponding anomaly on the opposite side of the column a few segments distally, which corrects the order of fusion. Though the lesion causes deformity of the back, it is apparently of no great clinical importance.

In a clinical study of the human vertebral column, the number of segments of the vestigial coccyx and of that part of the sacrum distal to the articulations with the ilia is of no particular consequence. The number of cervical segments is found to be remarkably constant. The thoracic vertebrae, distinguished by attachment of ribs, vary in number from eleven to thirteen, the modal number being twelve. The number of lumbar segments varies from four to six from a mode of five. There is frequently a gain or loss of one thoracic segment with compensatory loss or gain of a lumbar, the total number of presacral segments remaining unchanged. Such a variation was found in 9 of 748 skeletons that I¹ examined. In 4 of these a lumbar increase compensated for a thoracic decrease. In 5 the variation was reversed. Five of the 748 skeletons had but 23 presacra, 26 had 25. The remainder, 717, or 95.8 per cent, had the modal number of 24 presacral segments—a considerably greater degree of stability than is found in any of the other anthropoids. Todd² found that in the line of evolution leading from the primitive mammal to man there has been a progressive shortening of the presacral column which is parallel to specialization in skull, brain and teeth.

The first sacral segment of the vertebral column is determined by the level at which the ilia articulate with the column to form the sacroiliac joints. These are bastard joints, being formed not by vacuolation in the mesodermal tissues as are most joints but by the approach of the ilia, developing in the limb buds, to conjugate with the vertebrae. The meeting is usually, but not always, bilaterally symmetrical. The point of assignation determines the number of presacral segments. Shortening of the column is accomplished by evolutionary progression of this tryst toward the head. Lagging of one ilium behind the other results in asymmetrical sacralization of the last lumbar or first sacral segment.

The addition or subtraction of a segment cephalad to the sacrum is probably of no clinical significance. In the more strenuous physical fight for existence during

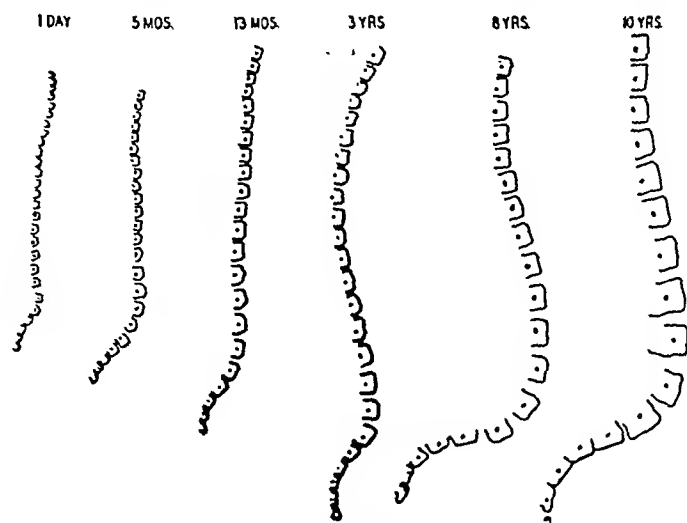


Fig. 2.—Tracings made from lateral roentgenograms of spinal columns at various ages, the subject lying at ease. All reduced on the same scale. The 13 month baby had not yet begun to stand, because of mental deficiency. Figures 1, 2 and 3 are reprinted with the permission of the Journal of Bone and Joint Surgery.

past eras the shorter column must have been of some advantage; otherwise the process would not have gone on. Of much more interest are partial loss or gain of

1. Willis, T. A.: The Lumbosacral Vertebral Column in Man, Its Stability of Form and Function, *Am. J. Anat.*, 32: 95-123 (July) 1923.
2. Todd, T. W.: "The Thoracolumbar Vertebrae of the Mammalia," *Proc. Zool. Soc. London*, 186 (Dec.) 1922.

a segment, as visualized in unilateral or bilateral sacralization of the last free segment with large transverse processes impinging or articulating with the sacrum or ilium, narrowing of the lumbosacral disk or formation of a false promontory.

Other anomalies of development prone to occur at the lumbosacral area are defects in closure of the neural canal and in development of the articular processes which anchor the lumbar column to the sacrum. The latter may lie in any position between the sagittal plane characteristic of the lumbar vertebrae and the transverse plane of the sacral, and frequently vary bilaterally, definitely affecting stability of the lumbosacral anchorage.

THE UPRIGHT POSTURE

In those early vertebrates that left the water to become amphibious and terrestrial in habit, developing legs from fins, the vertebral column lost its flexible cylindric form and acquired a slight posterior arch between its areas of support with reverse curves of its tapering extremities. Quadripedal locomotion required stronger bone formation at the weight bearing regions and larger bone surfaces for attachment of the ligaments and muscles that supported the arch and managed locomotion.

When man assumed the upright posture, further changes in structure were necessary. The 90 degree vertical turn accomplished at the lumbosacral area subjected this part to enormous mechanical strain. It was managed partly by rotation backward of the acetabulums on the femoral heads and partly by hyperextension of the lower lumbar and lumbosacral joints.

The development of the upright posture is reviewed in the embryology of the human infant. At 3 months the fetal column presents a single posterior curve. It then develops a lumbosacral angulation. At birth there is a posterior thoracolumbar convexity and a sacral curve has appeared; the head, hips and knees are flexed. When the face is tipped up the cervical curve develops, convexity forward. When the infant's hips are extended, the lumbar vertebrae are pulled forward by the psoas muscles and the hip ligaments, forming the typical lumbar curve (fig. 1). This does not become firmly impressed on the skeleton, however, until the child has been walking for several years (fig. 2). The more the hip joints can be extended, the less lumbar hyperextension is necessary and the more directly over the femoral heads the body weight is borne. Lack of hip extension accentuates the lumbar curve, increasing greatly the shearing force and strain on the lumbosacral ligaments, muscles and articular processes.

There has been described as existing in the skeletons of various races of men a defect or anomaly of development of the neural arch of a lumbar vertebra which affects the stability of the spinal column at the involved level. Since it has not been found in a fetus or in any of the anthropoids, it apparently is due to assumption of the upright posture or to some human custom in the care of infants. The etiology is still under dispute.

The defect, which consists of an interruption of bone continuity, occurs between the inferior and superior processes on either one or both sides of the neural arch,

so that anchorage of the superimposed column to the segment next below depends on fibrous tissue connection between the laminar fragments (fig. 3 *A, B, C* and *D*). It most often involves the last lumbar segment but has been found in the other lumbar. It predisposes

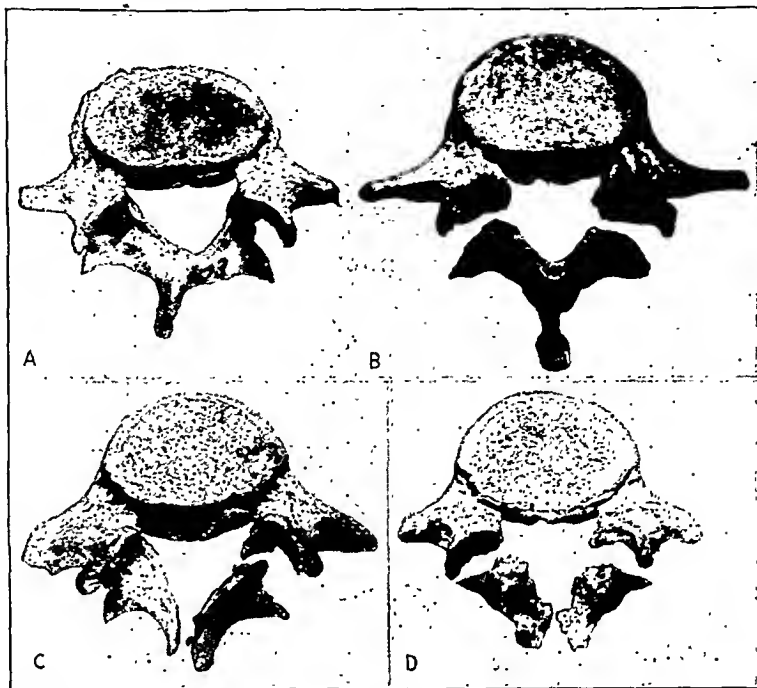


Fig. 3.—*A*, a last lumbar vertebra showing a unilateral defect of its lamina; note the arterial foramen piercing the defect; such a unilateral defect is of no clinical significance, as the opposite lamina is intact. *B*, bilateral laminar defect; in such an instance the anchorage of the spinal column to the sacrum depends on the fibrous tissue connecting the separate arch to the pedicles; stability of the lumbosacral articulation is definitely affected. *C*, association of the unilateral laminar defect with spina bifida leads to instability, though either defect alone may not. *D*, bilateral laminar defects associated with spina bifida; the cadaver from which this specimen was obtained showed a pronounced degree of spondylolisthesis; defects of this type and of type *B* are responsible for such a displacement in the great majority of instances.

the individual to forward displacement of the involved vertebra on the segment below, spondylolisthesis.

From sources in Russia, Africa, Europe and Japan and in aboriginal and modern America the neural arch defect has been reported in from 5 to 7 per cent of human skeletons. Stewart³ found it in 20 per cent of Eskimo skeletons from north of the Yukon. These Eskimo skeletons also showed a greater degree of numerical vertebral variation than has been found in other human material, 14 per cent, and always toward a longer column. In my studies⁴ the defective neural arch has been found in a higher percentage of those columns which showed an increased number of presacral segments.

The various tissues of the back are subject to all the diseases and injuries that may affect similar tissues elsewhere in the body and react to them in a similar manner.

X-RAY INTERPRETATION

The value of the x-rays as an instrument of diagnosis lies in their power to penetrate substances impervious to ordinary light and register the result on a fluoroscopic screen or a photosensitive film. Since the different tissues of the body vary in their resistance to the rays, the denser structures and, by filling them with opaque

3. Stewart, T. D.: Incidence of Separate Neural Arch in the Lumbar Vertebrae of Eskimos, *Am. J. Phys. Anthropol.* 16:5-62 (July-Sept.) 1931.

4. Willis, T. A.: The Separate Neural Arch, *J. Bone & Joint Surg.* 13:709-721 (Oct.) 1931.

material, the hollow organs can be visualized and their positions, size, structure and form determined.

Intelligent interpretation of the shadows cast on the screen or film requires expert knowledge of their normals and of the changes caused in them by disease and injury. Though certain pathologic processes typically produce certain changes in the tissues and organs of the body and these changes when present are suggestive of those processes, the reaction of different individuals to similar irritants, and differences in virulence of the acting irritants, introduce variants which make the interpretative diagnosis probable rather than positive.

Changes in bone density are either qualitative or quantitative. Diminished density results either from demineralization of the bone or from destruction of bone substance. Increased density may result from proliferation of bone or from increase of its mineral content.

Increased local vascularity, due to inflammation or passive hyperemia, characteristically produces demineralization of bones which may progress to softening and collapse. The x-rays do not differentiate between the possible causes of the vascularity.

Chronic inflammations are apt to show actual destruction with less demineralization and are frequently associated with bone proliferation. Reduced vascularity of a part results in calcification of tissue. Tuberculosis of a vertebra, which may be first evidenced by narrowing of an intervertebral disk, typically causes destruction and collapse of the vertebral bodies, though the disk does not entirely disappear unless mixed infection occurs. Phemister⁵ ascribes this fact to the inability of tuberculous pus to digest cartilage as does the ordinary pyogenic

the vertebrae superficially, stripping the periosteum from the posterior and lateral processes as well as from the bodies and causing calcification of the intervertebral ligaments, with or without narrowing of the disks, which it bridges.

Vertebral bodies and the denser bony processes may be the sites of primary neoplasms and are frequently the sites of metastatic lesions. The more common

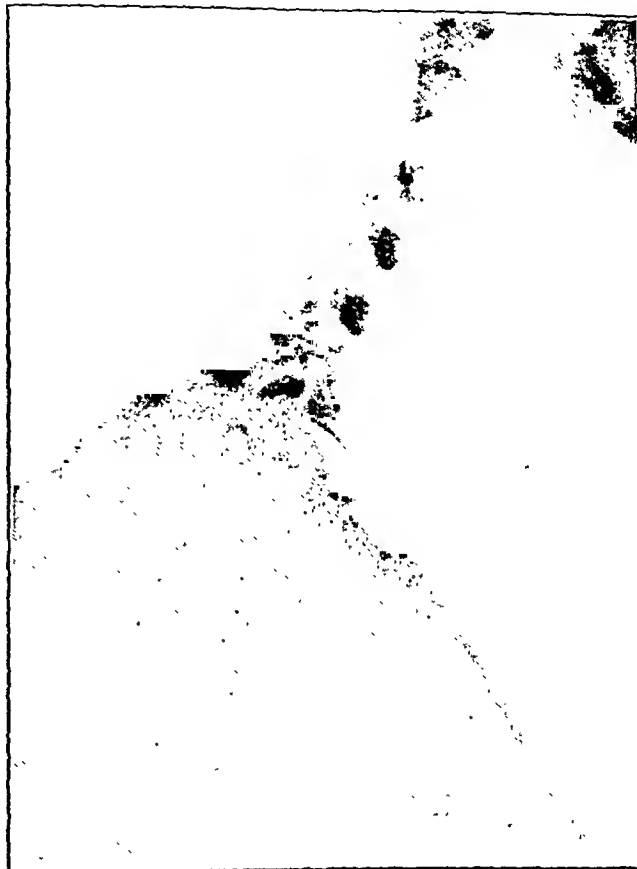


Fig. 5.—Fractures of the laminae of the 6th cervical vertebra with forward displacement of this segment on the seventh. The cord was not seriously injured in this instance. Note the final stabilization by calcification and ankylosis of the vertebral bodies.

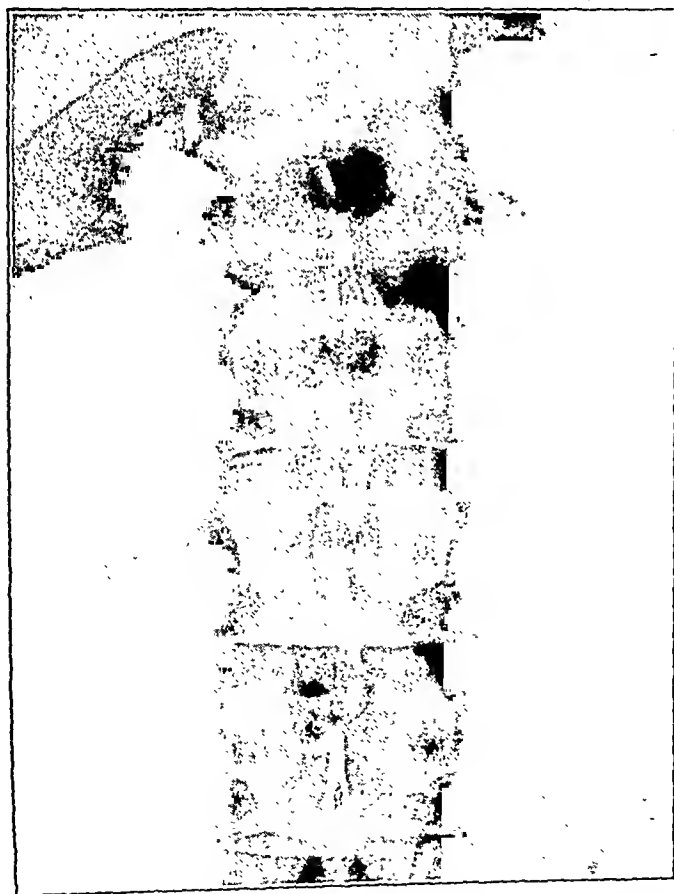


Fig. 4.—Fractures with but slight deformity of the right transverse processes of the 1st, 2d and 3d lumbar vertebrae.

process. Tuberculosis is typically destructive, but since Percival Pott's original description of its vertebral lesions it is known that the disease sometimes involves

of the vertebral tumors are metastatic carcinoma, myeloma, lymphoblastoma and polycystic disease. Positive differentiation of these by x-ray examination is frequently not possible.

Any part of any vertebra may be fractured. Those fractures most frequently incurred are compression fractures of the lower thoracic and upper lumbar vertebrae, fractures of the transverse processes of the midlumbar area (fig. 4), the spinous processes of the cervicothoracic and fracture of the cervical laminae, with or without dislocation of the articular processes and bodies (fig. 5).

Dislocations of vertebrae without associated fracture are rare and involve particularly the cervical segments.

Fractures and dislocations of the vertebral column can be tentatively diagnosed from clinical symptoms, but careful x-ray study is necessary to identify them positively. A detailed consideration of these, as of diseases of the back, from a roentgenologic point of view, is by far too large a subject for the present discussion.

Routine x-ray study of the back includes anteroposterior stereoscopic and lateral views of that part to which the symptoms are referred. These views may show conditions suggesting study of other parts of the back or other views of the same part. The normal curves of the column cause an overlapping of vertebral body shadows in the anteroposterior view, except of those bodies the surfaces of which are parallel to the

5. Phemister, D. B.: Changes in the Articular Surfaces in Tuberculous and in Pyogenic Infections of Joints, *Am. J. Roentgenol.* 12:1-14 (July) 1924.

rays. To obtain a true view of a particular vertebra, this must be borne in mind and the rays properly directed. Since the articular processes of the lumbar vertebrae vary between the sagittal and transverse positions, oblique views from either side are often needed to show them clearly.

As noted in discussion of its anatomy, the spinal column is held upright on its base by opposing groups of muscles. When the balance of these groups is disturbed either by spasticity or by paralysis, the column is deformed, curving toward the spastic group or away from the paralytic. The center of weight is thus thrown off balance, and toppling of the structure must be prevented by development of compensatory curves in the opposite direction. The primary curve gradually becomes fixed. This is a differentiating sign between primary and secondary deformities and can be demonstrated in x-ray films of the column taken with the subject standing and bending to alternate sides. The degree of a fixed curvature can be determined mathematically by measuring on the x-ray film the angle of intersection of perpendicular lines drawn from the centers of the transverse diameters of those two vertebrae which mark the ends of the deformity.

Anteroposterior deformities of the spinal column are simple curves. Lateral deformities are accompanied by rotation of the involved vertebrae about their vertical axes. Such rotation is necessary, first, because the column is a curved column and as such cannot bend laterally without rotation of its component parts and; second, because each vertebra has tripod articulations with its neighbors.

The various vertebral anomalies mentioned in discussing anatomy of the back are demonstrable by x-ray examination, but the presence of any one of them does not necessarily solve the problem of a person's backache (fig. 6 *A*, *B* and *C*). They are of clinical importance only as they affect the mechanical stability of the back or predispose the nerves and ligaments to injury. Some of them, particularly defects in the articular processes and in the laminae, are shown most clearly in oblique views of the spinal column.



Fig. 6.—*A*, anomalous transverse processes of the last lumbar vertebra. Unless painful bursae form between these and the sacral lateral processes or the ilia, or they irritate a nerve root because of lordosis, they are of little clinical importance. *B*, defective and asymmetrical development of the lumbosacral articular processes; note increased density of bone, suggesting long continued mechanical irritation; such processes predispose to mechanical strains and sprains. *C*, anomalous development of the inferior articular processes of the 3d lumbar vertebra, more pronounced on the right; these are probably of little clinical significance, as there is still efficient anchorage left.

The bilaterally defective neural arch definitely affects the stability of the spinal column at the level of its incidence. When the fibrous tissue binding the inferior articular processes and laminae to the pedicles is stretched or ruptured, the superimposed column glides forward on the segment below. This is the mechanism of spondylolisthesis in most instances (fig. 7 *A* and *B*).

A reverse spondylolisthesis, or backward displacement of the last lumbar on the sacrum, has been described by several authors. After careful analysis of their descriptions and illustrations, I am of the opinion that this diagnosis is based on faulty interpretation of the roentgenograms and is really an optical illusion due to the difference in anteroposterior depth of the last lumbar and first sacral vertebral bodies.⁶

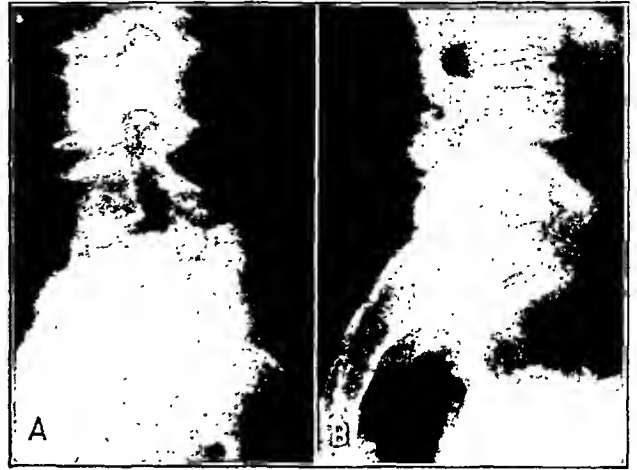


Fig. 7.—*A*, lateral view of lumbosacral area, showing defective neural arch of the last lumbar segment with forward displacement of that segment on the sacrum, the usual type of spondylolisthesis; this patient complained of recurring low backache with pain along the sciatic distribution, which was aggravated by coughing. *B*, lateral view of a lumbar spine; note the defect of the lamina and forward displacement of the 4th lumbar on the 5th; there is narrowing of the intervertebral space and depression into the inferior surface of the body of the 4th segment suggesting displacement of the disk. This patient was an overweight elderly man who had had no symptoms of back trouble preceding a fall onto his buttocks. There was sciatic pain on the left side and definite muscle weakness. This may have been an actual fracture. The patient died of cardiovascular disease and no autopsy was permitted.

In studying several hundred macerated skeletons, I found that beginning at about the 35th year of age there is a progressive lipping and calcification at the peripheries of the vertebral bodies and of the joints at the attachments of the synovial membrane and ligaments. This is most pronounced in thick boned heavy skeletons and least so in the long slender type. It appears first and to the greatest degree in the sacroiliac and lower lumbar areas. In the former it ultimately results in calcification of the anterior sacroiliac ligament, which usually starts at the pelvic brim and extends toward the upper and lower poles of the joint, often resulting in complete bridging and bony ankylosis of the joint (fig. 8 *A* and *B*). Because this bridge is thin and has a background of thick dense bone, it often is not shown on x-ray films. Its presence is suggested by a hazy appearance, with indistinctness of the joint outline. In the lumbar and lumbosacral areas the hypertrophic process involves particularly the vertebral bodies and often progresses to ankylosis of adjacent segments. It also involves the articular processes but is more difficult to show here by the x-rays.

Instability of a sacroiliac joint may be demonstrated roentgenologically by a change in level of the pubic bones in a standing patient when weight is borne on

6. Willis, T. A.: Backward Displacement of the Fifth Lumbar Vertebra: An Optical Illusion, *J. Bone & Joint Surg.* 17: 347-352 (April) 1935.

7. Willis, T. A.: Sacroiliac Arthritis, *Surg., Gynec. & Obst.* 57: 147-155 (Aug.) 1933.

alternate feet. Actual dislocation of a sacroiliac joint probably does not occur without associated fracture of the pelvis. Standing films are useful also in showing restriction of mobility between adjacent vertebrae as the trunk is flexed to alternate sides.

X-ray study of the hollow organs of the body by introduction of opaque material has been applied to the intradural space as an aid in diagnosis and localization of intradural and extradural pathologic changes. The currently most popular mediums injected to outline the dural space are radiotransparent air and radiopaque iodized oil. The former is less efficient as a contrast medium but is less irritating to the tissues and is readily absorbable. The latter is reported to have caused occasional tissue reactions and remains in the dural space indefinitely. It is, however, much more distinctly outlined than is air. Opinion is quite general that it should be introduced only when diagnostic and localizing symptoms are indefinite and surgical exploration seems quite probable. As much as possible of the substance is removed at operation. A newer and apparently safer contrast medium, pantopaque, is now being used and, when available to civilian hospitals, will possibly displace the others in popularity.

A normal intradural space appears as a smooth tube by x-ray with a pair of nerve root spaces branching

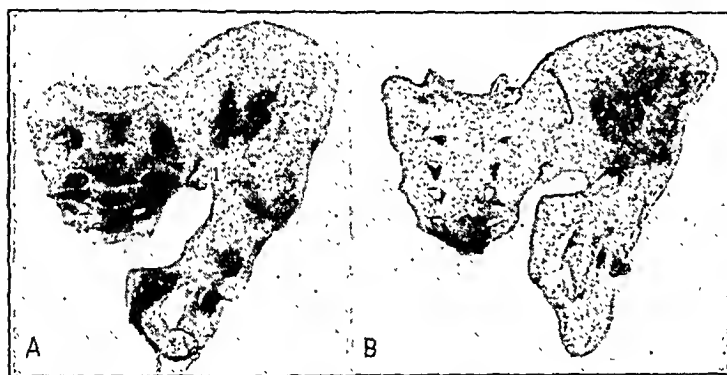


Fig. 8.—A, complete calcification of the anterior sacroiliac ligament as shown by a photograph; only that part of the joint above the pelvic brim is affected. B, calcification of the anterior sacroiliac ligament at the pelvic brim. There is also moderate arthritic lipping about the joint surfaces elsewhere. Note that the joint space is not narrowed. Such calcification gives very little evidence of its presence by x-ray. Reprinted by permission of Surgery, Gynecology and Obstetrics.

downward and outward at each segment. The medium flows freely along the cord as the table is tilted toward the head or foot. Any blocking of this flow or indentation of the column of medium is pathologic. The x-rays, however, do not determine the nature of the indenting substance.

SUMMARY

Man's back is a complicated arrangement of ordinary tissues subject to the same injuries and diseases as are similar tissues elsewhere in the body. It is liable to defects and anomalies of growth and development as are all parts of the animal body. Because there is still going on at the lumbosacral junction an evolutionary shortening of the vertebral column, and because this same part has been particularly involved in the transition from the pronigrade to the upright posture, this area is particularly apt to develop symptoms of strain, sprain and nerve root irritation of mechanical origin.

The x-rays are of primary importance in diagnostic study of the back. They give valuable information concerning the structure, density and position of the bones and joints and, with special technics, of some of the soft tissues as well. Their use is mandatory when diagnosis by clinical examination is at all doubtful.

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BACKACHE

EXAMINATION AND DIFFERENTIAL DIAGNOSIS

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When one reviews the progress in the understanding of this problem one must realize that real advances have been made in the past twenty years. Better methods of diagnosis have been developed and an ever increasing knowledge of many of the underlying causes has helped to develop an understanding of this condition. The problem still remains a broad one, with many phases yet to be understood.

In making a diagnosis, I have found it convenient to divide backache into the following groups:

1. In most cases of acute backache an accurate diagnosis cannot and should not be attempted on the first examination. Usually the picture is so masked by pain and muscle spasm that a satisfactory examination cannot be made. Often, with two or three days of rest, the clinical picture will so change that the diagnosis will be entirely different from the one that was considered likely at first glance.

2. A fairly large group of patients seek professional advice because of fear that their backache may be due to some serious involvement of the spinal column or kidneys or other parts. A careful examination will do much to relieve the minds of such patients.

3. In a large group of cases of backache a definite explanation can be found in some organic lesion. This is the largest group and presents many interesting problems in differential diagnosis.

4. One must regard compensation backaches as a different group because in many instances the patient attempts to capitalize on his disability, often to the detriment of his normal recovery. Malingerers and patients who have compensation neurosis can be detected at once by the experienced examiner, and in many instances treatment will prove futile until compensation is settled and that obstacle to recovery removed. Fortunately, in the majority of cases compensation backache runs a more or less normal course and can be treated by routine methods.

5. The final group includes hopeless backache due to malignant disease and other conditions for which nothing curative can be done. Recognition of such a situation is important. Relatives should be informed of the situation, and the patient should be made as comfortable as possible by whatever forms of palliative treatment are available.

HISTORY

The relative importance of an accurate and complete history and a careful and thorough physical examination can be discussed at length. Probably there is no choice between these so far as importance is concerned. Each must be thorough and accurate as to detail. In recording the history, type of pain, onset and duration of the pain, the localization and distribution or reference of the pain and many other features must be noted.

In general there are four types of pain which may be noted in these cases. First, there is static pain or pain that is relieved by rest and brought on by activity. Conditions which produce pain of this sort are usually mechanical faults such as spondylolisthesis and trans-

From the Section on Orthopedic Surgery, Mayo Clinic.
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matic spondylitis. Second, there is morning pain, or pain which occurs after resting. Such pain is usually found in inflammatory types of lesions, such as spondylitis deformans and myositis. Third, there is nocturnal pain, or radicular pain. Such pain is often seen in neurologic conditions such as tumors of the spinal cord and lesions of the intervertebral disks. Fourth, there is constant or intractable pain. Usually this type of pain is seen in malignant disease, either primary or metastatic, in some cases of tumor of the spinal cord or in some cases of infection of the intervertebral disks. A partial list of these types of pain and their underlying cause is presented in table 1.

It is always helpful in cases of chronic back pain to determine what types of previous treatment the patient has been given and to note the response which the patient made to such treatment. Such information would naturally lead one to a more definite decision as to a program of treatment to be followed.

Movements of Vertebral Column: These should first be tested while the patient is standing. One should note whether there is any limitation of motion on forward bending. If localized limitation of motion is present this should be noted. Backward bending is usually only through a small range and usually of less significance than changes in forward bending. Side bending with the arms held to the side and shoulders slumped forward is difficult to evaluate. This can be obviated by asking the patient to place his hands behind his head and his arms in the plane of the body. Such a position lifts the scapulas and gives a better view of the spine. Limitation of bending should be noted as well as the direction of such limitation. If the limitation is very noticeable, it is well to measure and record the amount of expansion of the thorax between expiration and inspiration at this time.

Palpation and Percussion: Tender points should be carefully noted. In palpating or percussing the spinal

TABLE 1.—Particular Types of Pain Associated with Backache

	Type of Pain Present			
	Static, Relieved by Rest	Morning, With or Without "Jelling"	Nocturnal	Constant
Probable pathologic condition present	Traumatic spondylitis Spondylolisthesis Spondylolysis Old fractures of vertebrae Fractures of facets and pedicles Perivertebral traumatic changes	Usually inflammatory lesions Myositis Spondylitis deformans Fibrositis Traumatic injuries with superimposed inflammation	Associated with neurologic conditions Tumors of the spinal cord Lesions of disks Obscure types, no demonstrable lesion May be forerunner of spondylitis	Malignant lesions, primary or secondary Other tumors of spinal cord Some lesions of disks Acute infection, such as osteomyelitis or infection of intervertebral disk

TABLE 2.—Lesions Which Often Underlie Pain in Lower Part of the Back

	General Type of Lesion Present					
	Postural Strain	Static or Post-Traumatic	Rheumatic	Infectious (Other Types)	Senescent	Neoplastic
Probable pathologic condition present	Abnormal lordosis Adolescent; other types of round back Obesity Faulty body and foot mechanics	Spondylolisthesis Defective pedicles Old fractures (Kummell's) Fractured facets Fractured pedicles Thin disks; protruded disks Hypertrophy and post-traumatic changes Congenital anomalies	Infectious arthritis Spondylitis deformans Myositis	Tuberculosis—benign osteitis—osteitis deformans Intervertebral disks, inflammatory Brucella abortus Typhoid spine	Senile osteoporosis Senescent and hypertrophic arthritis	A. Malignant myeloma Metastatic malignant lesion Primary sarcoma Ewing's tumor B. Benign osteoma and osteochondroma Giant cell tumor Hemangioma

EXAMINATION

A thorough physical examination should be made in every case of backache. Examination of the patient with his clothes on is almost useless. The patient should be stripped and covered with a cape or sheet.

Inspection.—Posture: In inspecting the posture of the patient, one should note the following: (1) round shoulders, especially winged scapula or rounding of the thoracic segment of the vertebral column, (2) lordosis, whether normal, obliterated or exaggerated, (3) abdomen, whether prominent, pendulous or flat, (4) knock knees or bow legs, and (5) whether the feet are pronated or well supported.

Deformities: Any visible deformity or abnormality should be noted. This usually will require only a few seconds. Although many deformities or abnormalities may be observed in cases of backache, only the following will be mentioned: (1) kyphosis, (2) scoliosis, whether postural, structural or sciatic, and its direction, (3) pelvic tilting, (4) obvious muscle spasm, (5) shortening of the trunk, which is frequently observed in cases of spondylolisthesis, (6) draining sinuses, (7) tumor masses and (8) prominence of muscle groups caused by spasm.

column, tenderness due to deep seated vertebral lesions usually can be detected only by percussion over the spinous process of that vertebra with the closed fist. Firm percussion in this manner will show the site of a deep lying lesion. A localized area of superficial tenderness should be noted, such as tenderness at ligamentous and muscular attachments, over the spinous processes of the vertebrae and over the posterior superior spine of the ilium. A fairly common site of tenderness is the area over the sacrosciatic notch. At this point one may often say that such tenderness may be due to sacroiliac strain or disease. Such a tender area may often be seen with herniation of a nucleus pulposus at the lumbosacral area and with other types of lumbosacral lesions; therefore too much significance should not be attached to this particular area of tenderness. Palpation of the muscles of the back may reveal three significant findings. First, there may be tenderness. When this is widespread it usually indicates a myositis or fibrositis or some type of generalized muscular lesion. When localized it points toward a localized muscular lesion, such as may be caused by acute strains. Second, spasm of the muscles of the back is readily detected. This is often of a protective nature and may

be unilateral or bilateral, depending on the type of underlying lesion. Third, there may be muscle atrophy or wasting. Flabbiness and atrophy are often seen in cases of long standing backache of various types. Their significance is often overlooked, for, as is the case of disturbances of the knee joint, in which muscle atrophy is often the cause of persistent symptoms, the flabby atrophied muscles of the back may retard recovery from symptoms until their integrity and tone are restored by persistent and faithful attention to exercises designed to restore muscle strength.

Special Tests.—Various types of special tests aid in the diagnosis of painful conditions of the back. One of these is the straight leg raising test, or Lasègue's sign. When this test is positive it is indicative of spasm of the hamstring muscles, which most frequently occurs in association with sciatic pain that is caused by a lumbosacral lesion. Gaenslen's sign is the production of pain over an affected sacroiliac joint by forcible extension of one hip over the edge of the examining table while the opposite hip is flexed. Other signs or tests that have been used in the diagnosis of lesions that may cause backache are Goldthwait's sign, Ely's sign and Patrick's test. Most of these have been used in the differential diagnosis of sacroiliac and lumbosacral lesions. As the widespread interest in lesions of the intervertebral disks has drawn increased attention to the lumbosacral joint, the importance of the sacroiliac joint as a source of symptoms has waned, perhaps to a point where sacroiliac conditions may be overlooked. One of the most recent of the signs to be employed is Ober's sign, which demonstrates a tight iliotibial band. In my experience it has been present at times, but not at other times, and it seems that, as time goes on, its significance has been overemphasized. At times it is of great significance, but when it is not consistently found it may not mean very much.

There is no need to emphasize the importance of good roentgenograms in studying lesions which may cause backache. The making of roentgenograms requires care and skill, and proper preparation of the patient also is important. Anteroposterior and lateral roentgenograms are essential, and in some instances these should be supplemented by stereoscopic anteroposterior roentgenograms. In cases in which lesions of the facets or pedicles are suspected, oblique roentgenograms may be helpful.

Other laboratory tests may be necessary but often are not necessary unless some indication arises. As a routine it is well to examine the urine, determine the concentration of hemoglobin in the blood and perform a flocculation test. In cases in which inflammatory lesions are suspected, one can obtain some help from an estimation of the sedimentation rate of the erythrocytes.

SPECIAL TYPES OF LESIONS

There is a rather large group of lesions which may be definitely diagnosed and may be regarded as the cause of pain in the lower part of the back. It is on this group that our interest is particularly centered. A correct diagnosis will end the search for an etiologic factor and one can recommend treatment and offer a prognosis, both of which are difficult in cases in which no lesion can be discovered.

Table 2 lists some of the more frequently found lesions which can cause backache and which can be properly diagnosed and treated. All of these lesions cannot be considered in detail, but a few will be briefly considered because of their importance.

Postural Strain.—Various types of postural strain may be noted. The important thing in connection with this type of backache is to obtain the patient's thorough understanding and cooperation in treatment. Much time and particular effort on the part of the patient are necessary to overcome such defects, and good results can be obtained only if the patient is willing to follow out a program of graduated exercises for a long time in order to regain lost muscular tone and correct carriage.

Round Back and Epiphysitis.—Adolescent round back or vertebral epiphysitis is usually seen among adolescents. The importance of this condition as a precursor of a chronic type of lame back should be realized and every effort made during the active acute stage to prevent the stiffening and deformity that result when treatment is not employed. Treatment consists mainly in a rigid program of exercises to strengthen the erector spinae muscles and the wearing of a brace sufficiently rigid to prevent the severe type of round back deformity. Such a brace must include shoulder straps to keep the spinal column as straight as possible. General hygienic measures also should be stressed. Foci of infection should be eradicated and the diet should be adequate. Under such a program the ultimate deformity in many of these cases will be minimized and much trouble later on in life will be avoided. One sees a good many adults who have backache that is due to increased lordosis secondary to a fixed rounding of the thoracic segment of the vertebral column, obviously resulting from an adolescent kyphosis.

Spondylolisthesis and Spondylolysis.—Spondylolisthesis (figs. 1 and 2) and spondylolysis are equally important as causative factors of backache, with or without sciatic pain. Spondylolisthesis is a well known lesion. Spondylolysis is a term applied to spines with a defect in the pedicle of a vertebra without any forward slipping of the vertebra. This defect also has been called prespondylolisthesis. Both of these conditions, when present, usually are the cause of pain in the back. Their cause is uncertain. In some cases the defect is definitely congenital; in other cases it may be due to



Fig. 1.—a, lateral view showing forward displacement of fifth lumbar vertebra; the break in the arch is indicated by the arrow; b, anteroposterior view showing incomplete sacralization of fifth lumbar vertebra (indicated by arrow).

injuries at birth¹ or may appear subsequent to trauma. In a few cases it produces symptoms before adult life is reached. It seldom is discovered in childhood; although it may be discovered in adolescence, in most cases it first is recognized in adult life. In many cases

1. Hitchcock, H. H.: Spondylolisthesis: Observations on Its Development, Progression and Genesis, *J. Bone & Joint Surg.* 22: 1-16 (Jan) 1940.

the first symptoms occur after trauma. When the patients are less than 50 or 60 years of age, the best treatment is a fusion operation.

Lesions of Intervertebral Disks.—Lesions of the intervertebral disks may be the cause of symptoms, particularly if the disks have become thinned and undergo hypertrophic changes about their margins. Such changes unquestionably occur as an end result of an

deep massage and in others by roentgen therapy. The very stubbornness of this condition in its response to various types of treatment is often helpful in making the diagnosis.

Other Infectious Lesions.—Other types of infectious lesions of vertebrae which must be mentioned are tuberculosis (fig. 3), benign osteitis, infection of an intervertebral disk, such as suppurative infection, and brucellosis and typhoid spine. Tuberculosis is undoubtedly much less frequently seen than in years past. At the same time it now is much more difficult to make a correct diagnosis of tuberculosis of the spinal column than it was in former years. Well advanced tuberculous infection with kyphos and abscess, which frequently was the presenting picture several years ago, should not be allowed to develop. Now the diagnosis should be made before kyphosis has developed. One may have little more to go on than a moderately painful vertebral column with

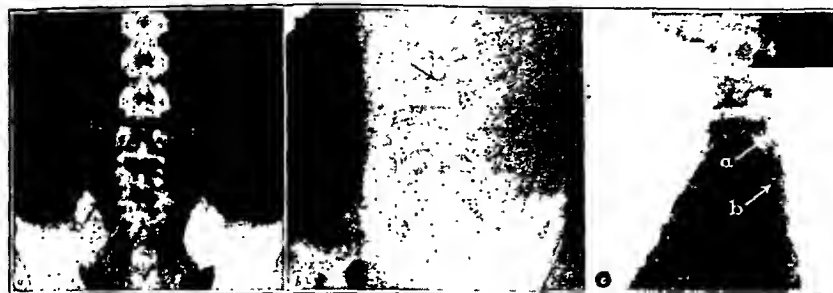


Fig. 2.—Spondylolisthesis and sacralization of right transverse process of fifth lumbar vertebra: a, anteroposterior view; arrow a points to defect in the pedicle, and arrow b points to incomplete sacralization on the right side; b, oblique view showing defect (indicated by arrow); c, lateral view; defect is indicated by arrow a; arrow b indicates thinning of the disk at the fifth lumbar interspace, which is not due to trauma but is part of the anomaly producing the sacralization.

ancient herniation of the nucleus pulposus or fibrosis due to wear and tear on a disk. These traumatic changes must be distinguished from congenitally thinned disks, which often are associated with partial or complete sacralization of the fifth lumbar vertebra or a lumbarization of the first sacral vertebra.

In cases in which thinned disks produce persistent pain that is static in type, relief usually can be obtained by a fusion of the two adjacent vertebrae or by lumbo-sacral fusion in cases in which the fifth lumbar disk is involved. If there is any suspicion of a herniation of the nucleus pulposus, laminectomy should be done at the same time.

Other traumatic changes such as old fractures with localized perispondylitis, some congenital anomalies and fractures of the facets and pedicles also can produce a static type of backache.

Spondylitis Deformans.—Of the rheumatic types of lesions, one must mention particularly spondylitis deformans. This condition, once well established, offers very little difficulty in diagnosis. The typical poker spine with calcification of the ligaments and a rounded kyphotic deformity is not difficult to diagnose. However, in cases of early spondylitis deformans the diagnosis is difficult. The usual picture of a stiff vertebral column, limited expansion of the thorax, roentgenologic changes in the sacroiliac region and elevation of the sedimentation rate may not be present. Usually one or two of this group of signs may be found, but at times none of them may be present. I have seen a good many cases in which a mistaken diagnosis has been made and the true condition not recognized in the early stages. The best advice one can give in cases in which early spondylitis deformans is suspected is to follow a program of treatment suitable for spondylitis deformans and observe the progress.

Myositis and Fibrositis.—Myositis or fibrositis is a rather common cause of backache of the rheumatic type. Pain and stiffness, particularly if it occurs after sitting or arising in the morning, that is relieved to a large extent by activity and is not associated with evidence of skeletal change is often of the myositic or fibrositic type. This condition often is stubbornly resistant to treatment but may be relieved in some instances by heat and

some localizing tenderness on percussion and roentgenographic evidence of thinning of an intervertebral disk and perhaps a slight shadow of the perivertebral soft parts, suggesting an abscess. Evidence of tuberculosis elsewhere in the body may support such a diagnosis. At times one cannot be sure, and only by observation for a period of months can one be certain of the diagnosis. During such a period of observation one should treat the patient for tuberculosis of the spinal column. I believe that it may be wise in many of these cases of suspected early tuberculosis to proceed at once with a bone graft operation. Many months of invalidism and at times progression of an early tuberculous lesion may be arrested by such procedure.

Senile Osteoporosis.—This condition has come to be recognized more and more frequently since it has been established a clinical entity. It usually affects women of middle or advanced age. It is characterized by sharp



Fig. 3.—Early tuberculosis of the eleventh and twelfth thoracic vertebrae; a, anteroposterior view showing fusiform shadow produced by a perivertebral abscess; b, lateral view showing thinning of the intervertebral disk (indicated by arrow).

pain in the thoracic or lumbar segment of the spinal column, by a gradually increasing rounded thoracic kyphos and usually by loss of stature. Roentgenograms show extensive osteoporosis involving the vertebrae and compression fractures and ballooning of intervertebral disks. The differential diagnosis usually involves exclusion of parathyroid osteosis, osteitis deformans and

malignant lesions, particularly metastatic lesions. In senile osteoporosis, calcium, phosphorus and phosphatase values in the serum are normal. This is not true in cases of hyperparathyroidism or osteitis deformans. Metastatic malignant lesions are more localized than are lesions of senile osteoporosis, and a primary tumor may be discovered. Myeloma may at times be confused with senile osteoporosis, and only after a period of observation will the differential points be obvious.

Senescent and Hypertrophic Changes.—Senescent and hypertrophic changes about vertebrae are often the cause of backache. Such backache usually follows an injury. The diagnosis is usually easily made on the basis of activation of symptoms by strain or injury and by more or less extensive hypertrophic changes seen in the roentgenogram.

Neoplasms.—Of the various types of neoplasm involving the vertebrae, the most common are metastatic lesions. The most frequent sites of primary lesions are the breast in women and the prostate gland in men. It must be remembered that other types of malignant lesions may metastasize to the spinal column. Every possible site of malignant lesion should be reviewed if a metastatic lesion is suspected. The most important clinical observation to remember in dealing with metastatic malignant lesions is that the resulting pain often is intractable and relieved only by large doses of sedatives. It is a good rule to regard vertebral pain which cannot be relieved by rest, heat, massage and mild sedation as probably due to a metastatic malignant lesion, although this is not always true.

Multiple myeloma is more often present primarily in the vertebrae than anywhere else in the skeleton. Early in the course of this disease the diagnosis may be difficult. In a case in which the disease is well advanced with numerous small "punched out" regions, involvement of bones is easily recognized but an early lesion may be difficult to recognize. The presence of Bence Jones protein in the urine may be suggestive, but this is not always present in cases of myeloma. Sternal

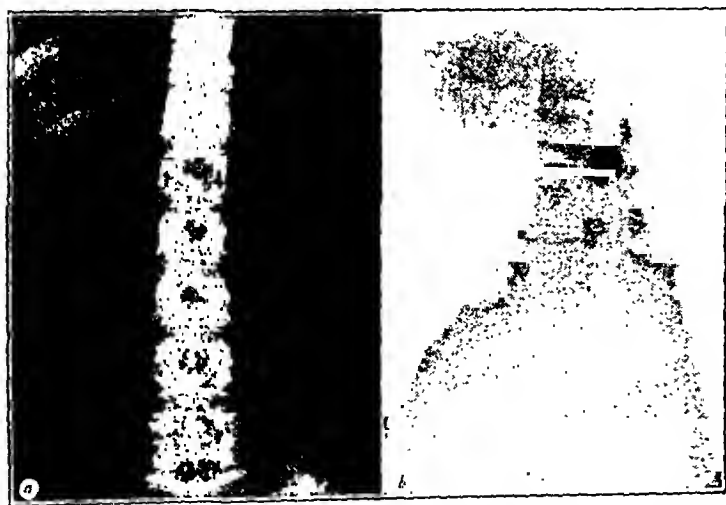


Fig. 4.—Asymptomatic hemangioma of first lumbar vertebra: a, anteroposterior view; b, lateral view.

aspiration and examination of the aspirated bone marrow by an experienced hematologist may be the deciding factor in the diagnostic procedure. At times, observation for a period of months may be necessary in order to make a definite diagnosis.

Of the benign tumors involving the vertebrae, the most common lesion is hemangioma (fig. 4). This lesion is by no means common, however. Schmorl^{1a}

found hemangiomas in over 10 per cent of all vertebrae examined. Most of these represented microscopic hemangiomas of no clinical significance. Adson and I² found records of 39 cases of recognized hemangioma of the vertebrae in the files of the Mayo Clinic. In about half of these the lesion was asymptomatic and was discovered in various types of routine roentgenographic examination. Thus it will be seen that this lesion is not an important cause of backache. Its recognition, however, is important, and one should bear it in mind when examining persons complaining of backache.

COMMENT

I have enumerated some of the lesions which may be the background of backache. The list is by no means complete, but it serves to illustrate that many conditions may be found which are adequate causative factors of backache. Ability to recognize these is of the utmost importance, and to one who may feel himself adequately versed in the problem of backache they should be familiar. Recognition of such lesions makes the diagnosis certain and serves to clear any doubt about the underlying lesion that may exist in many cases of backache. If treatment does not hold much promise, at least a proper prognosis can be given, and this often is very important to the patient.

THE NEUROLOGIC ASPECTS OF LOW BACK PAIN AND SCIATICA

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NEW ORLEANS

There is an erroneous impression among physicians that many cases of chronic back pain are the result of disease of the spinal cord, spinal meninges or spinal nerves. The fact is that disease of these organs rarely causes back pain and, when it does, the pain is overshadowed by such symptoms as paralysis, anesthesia and pain at a distance from the spine. Probably less than 1 per cent of cases of back pain are caused by primary diseases of the central and peripheral nervous systems. These infrequent neurologic causes of back pain are classified and briefly discussed in the following paragraphs.

INTRACRANIAL DISEASES CAUSING BACK PAIN

Intracranial diseases causing back pain are rare and are mentioned here merely for the sake of completeness.

Subarachnoid Hemorrhage.—Blood may enter the spinal subarachnoid space when the head is injured, when a brain tumor bleeds or when an intracranial aneurysm ruptures. Regardless of the source of intrathecal bleeding, the symptoms are much the same except that they may be mild or severe, lasting for a few days or several weeks. There is pain in the head, neck and back. Nuchal rigidity and low fever are usually present. Often there may be accompanying pains in the extremities. The chief source of spontaneous subarachnoid hemorrhage is a leaking artery, frequently a congenital aneurysm in the region of the circle of Willis. If the first attack is not fatal, a patient may experience several such episodes over a period of years. At times the symptoms may suggest rheumatism, poly-

2. Ghormley, R. K., and Adson, A. W.: Hemangioma of Vertebrae. *J. Bone & Joint Surg.* 23: 887-895 (Oct.) 1941.
This paper, in a symposium on "Backache," is published under the auspices of the Section on Orthopedic Surgery.
From the Division of Neurosurgery, Department of Surgery, Tulane University School of Medicine and the Section on Neurosurgery, Ochsner Clinic.

1a. Schmorl, G.: Die gesunde und kranke Wirbelsäule im Röntgenbild, *Fortschr. a. d. Geb. d. Röntgenstrahlen* 43: 74, 1932.

neuritis or influenza, but the apoplectic onset and the presence of blood in the spinal fluid dispel any doubts.

Medulloblastoma.—The malignant tumor of the cerebellum which occurs chiefly in early childhood sometimes metastasizes along the spinal subarachnoid space. Back pain results but rarely presents a diagnostic problem, since the cerebral symptoms are striking.

Postencephalitic Parkinsonism.—This condition is sometimes accompanied by back pain. This is the result of generalized rigidity which affects the entire musculature, including that of the back.

Encephalitis.—Although encephalitis is said to be a cause of back pain, the associated inflammation of the spinal meninges is probably responsible for this symptom.

Mental and Emotional Diseases.—Patients with certain psychoses and psychoneuroses have "tension states" in which muscles are held rigidly and abnormal postures are maintained. Severe backache and pain in the shoulders or occipital region are the physiologic results. Another mechanism occurs in anxiety states. A person worried about his health will look for symptoms of illness and consequently detects each discomfort that appears. Since backache is one of the commonest human symptoms, it is not surprising that neurotic patients complain bitterly of back pain which would scarcely reach conscious levels in stable persons.

Malingering.—Deliberate lying about back pain or gross exaggeration of mild symptoms is a possibility which must be considered in every patient who does not present objective findings such as spasm of the back muscles. The physician is usually on guard against simulation in industrial and military cases, but it must be remembered that other patients may have less obvious reasons for wishing to appear partially incapacitated.

In summary, there are few organic diseases of the brain giving rise to back pain. Psychoneurosis and malingering must be considered in every case of back pain which presents a diagnostic and therapeutic puzzle.

SPINAL CORD DISEASES CAUSING BACK PAIN

Contrary to a commonly held impression, intrinsic diseases of the spinal cord rarely cause back pain. Such diseases as combined sclerosis, amyotrophic lateral sclerosis, progressive spinal muscular atrophy, Landry's paralysis, Friedreich's ataxia, multiple sclerosis, syringomyelia, glioma of the cord and syphilitic myelitis are practically painless because there are no sensory end organs in the spinal cord. However, the resulting spastic paralysis or muscular atrophy may produce scoliosis and secondary back pain. The acute stage of poliomyelitis often produces pain in the back, neck and extremities which is caused by associated meningeal and nerve root irritation and not by the cord lesions. The lightning pains of tabes dorsalis, which sometimes affect the back, are due to lesions in the spinal nerves and not to the degenerative changes in the spinal cord. Rarely, slight discomfort or a burning sensation in the back is felt by patients who have intrinsic diseases of the cord. This poorly understood symptom is vaguely referred to as central and funicular pain.

INTRINSIC DISEASES OF SPINAL MENINGES AND NERVE ROOTS (INCLUDING THE CAUDA EQUINA) WHICH CAUSE BACK PAIN

Rarely is back pain a dominant feature of intrinsic diseases of the spinal meninges and nerve roots, because the accompanying radicular pain is so severe. Among

the diseases in this group are meningitis (including that which accompanies anterior poliomyelitis), extradural cysts of the arachnoid, adhesive arachnitis, hypertrophic pachymeningitis, sarcoma of the meninges, meningiomas, neurofibromas and other tumors of nerve roots or meninges. The extramedullary spinal cord tumors, which eventually produce transverse myelopathy, may cause pain high in the back and tenderness at the level of the lesion, but a much more striking feature is the radicular pain resulting from compression of nerve roots. Thus "girdle pains," "intercostal neuritis" or "brachial neuritis" may be the earliest symptom of such a tumor. Tumors of the cauda equina, although incapable of producing transverse myelopathy, may in time cause extensive paralysis of the lower extremities and the sphincters. At times such tumors cause a certain amount of pain low in the back, but the predominant complaint is pain radiating down the back ("sciatic neuritis") or front of the thigh ("femoral neuritis"). The prolonged back pain which sometimes follows spinal puncture might appear at first glance to belong in the category of intrinsic disease of the meninges. However, this pain, as well as the localized back pain produced by stab and bullet wounds of the spine, is not the result of injury to meninges or roots but is the result of damage to the ligamentous structures of the spine. Smallpox, tetanus, typhoid and influenza are all characterized by severe back pain at one stage of the infection. The mechanism of this symptom is not clearly understood, but it is unlikely that it can be explained on a neurogenic basis.

In summary, the intrinsic diseases of the spinal meninges and nerve roots are usually painful, but the pain is felt along the course of the peripheral nerves much more than in the back. Only rarely need these lesions be considered in the differential diagnosis of chronic low back pain.

DISEASES OF PERIPHERAL NERVES (INCLUDING SYMPATHETIC NERVES) AS A CAUSE OF BACK PAIN

In general, tumors, injuries and inflammations of peripheral nerves cause pain along these nerves or in their peripheral distribution. Only rarely does intercostal neuritis, herpes zoster or other disease of the peripheral nerves cause predominant backache or back soreness. Dysfunction of the sympathetic nervous system can produce pain only by producing paralysis or spasm of blood vessels. Such pain is probably never located solely in the back.

LESIONS OF BONES, JOINTS, LIGAMENTS, VESSELS AND OTHER STRUCTURES OF SPINAL COLUMN WHICH COMPRESS OR IRRITATE SPINAL CORD, MENINGES AND NERVE ROOTS WITH RESULTING BACK PAIN

In this category are tumors of the vertebrae (sarcoma, metastatic carcinoma, myeloma, hemangioma), tuberculosis and other infections of the vertebrae, extradural spinal abscess, intraspinal varices, fractures and fracture dislocations of the spine, infections and injuries of intervertebral disks, spondylolisthesis and arthropathies. Although compression of the cord, roots, meninges and their vessels by a tumor or dislocation of the spine may result in a certain amount of pain in the back, probably 95 per cent of the back pain arises from the diseased or injured bones, joints, ligaments, muscles and vessels of the spine. Often a striking feature of vertebral disease (fracture, tumor,

ruptured disk) is pain at a distance from the spine, as in the hip, gluteal region or thigh. Such pain may be referred (direct irritation of a nerve root) or reflex pain (impulse originating in damaged tissue and traveling to the cord over a primary posterior division of a spinal nerve, synapse in the cord and retrograde reflection along the primary ventral division of the same spinal nerve).

The intrinsic diseases of the spinal column listed in the preceding paragraph are of primary interest to the orthopedic surgeon. The neurologist and neurosurgeon are not concerned with them unless the spinal cord or nerve roots are compressed or invaded. For example, a tumor of a vertebra is given roentgen therapy and back support until symptoms of spinal cord compression demand decompressive laminectomy. Another example is fracture or fracture dislocation of the spine without cord compression; this is treated by reduction and immobilization. If chronic radicular pain should result from compression of a root by the dislocation, laminectomy and posterior rhizotomy might be required. Thus it is seen that certain diseases and injuries of the spinal column eventually encroach on the nervous system and come to the attention of the neurosurgeon. Most important of these lesions, from the point of view of back pain, is the ruptured intervertebral disk.

RUPTURED INTERVERTEBRAL DISK AS A CAUSE OF PAIN IN THE LOWER BACK

Why intervertebral disks rupture is not entirely clear. The fact that multiple ruptured disks are often found in cadavers suggests predisposing factors, such as degenerations or congenital imperfections of the disks. Only about 60 per cent of patients operated on for ruptured disk can attribute the symptoms to a definite back injury. Probably the repeated stresses of lifting, bending and jumping are sufficient to cause disk disruption in many persons.

Whereas any intervertebral disk can rupture (autopsy reports), in 95 per cent of the clinical cases it is the fourth or fifth lumbar disk. Herniation of the third lumbar or sixth cervical disk is occasionally seen. Protrusion of the others is rarely encountered.

The central portion of a disk (nucleus pulposus) is a gelatinous material which is held in position by two plates of hyaline cartilage and the fibrocartilaginous rings of the annulus fibrosus. Any disease or injury which destroys the continuity of these structures permits part of the semifluid nucleus pulposus to escape either into the body of the adjacent vertebrae or into the spinal canal. Escape in other directions is rare because the annulus fibrosus is stronger anteriorly and laterally. Probably a patient begins to have back pain as soon as the nucleus escapes. The exact mechanism by which an injured disk produces pain is not entirely clear, even though sensory nerve fibers are known to be present in each disk. It has been repeatedly observed that back pain is produced when the interior of a disk is curetted out under local anesthesia. This pain is probably due to stretching of either the anterior longitudinal ligament or the rings of the annulus fibrosus. However, other mechanisms for the production of back pain must be considered. As the ruptured disk becomes atrophied and flatter, the entire disk bulges at the periphery. This results in painful stretching of the posterior and anterior longitudinal ligaments of the spine. Also a narrowing disk permits an abnormal

strain to be placed on the adjacent articular facets. Painful subluxations and degenerative changes in the joints may result. Finally, reflex spasm of the erector spinae muscles may cause fatigue, soreness and pain in the back.

Character of Back Pain.—Since many patients with sciatic pain due to a ruptured disk give a history of preceding attacks of back pain, it is possible to describe the syndrome of ruptured disk without nerve root compression. At the onset, immediately after rupturing a disk while lifting a heavy object, the patient may experience a knifelike pain near the lumbosacral joint or just to one side of this region. Severe pain may persist for many days or several weeks. The fact that many patients locate the pain at one sacroiliac joint once led to the excessive use of the term "sacroiliac strain." In some cases the pain extends entirely across the lower part of the back. It is accompanied by spasm of the back muscles and scoliosis. The back pain (often called lumbago) eventually subsides only to recur in distinct attacks which are precipitated by unusual strain on the injured disk. Lifting, turning over in bed in an awkward manner or a long automobile ride may produce a recurrence. The patient may be partially incapacitated for days or a week. During the chronic stage of ruptured lumbar disk some patients, on arising in the morning, feel back pain and stiffness which lasts for approximately an hour. Some have enough back pain with every attempt at lifting to force them to change occupations.

Diagnosis of Low Back Pain without Sciatic Pain.—Ruptured disk as the cause of low back pain without sciatic pain can be suspected on the basis of the character and the location of the pain, but because confirmation is lacking orthopedists and neurosurgeons are reluctant at the present time to make this diagnosis. There are too many lesions of muscles, joints and ligaments that can produce a clinical picture which is almost identical.

Roentgenograms of the lumbar spine and pelvis are usually negative in cases of ruptured disk. Narrowing of the disk of sufficient degree to be detectable with the patient lying down is an inconstant finding. Furthermore, a narrow lumbar disk is not sufficient evidence to conclude that the back pain is being produced by that disk. Narrow disks, due to long standing rupture, can often be found in patients who have never had back pain. Obviously, no one but an orthopedic surgeon should presume to make a diagnosis of ruptured disk as a cause of low back pain in the absence of sciatic pain.

Myelography with iodized oil has been employed by some in an attempt to demonstrate intraspinal protrusion of a disk as the cause of back pain in the absence of sciatic pain. However, a ruptured disk can cause back pain long before it protrudes sufficiently to produce an abnormal spinogram. For this and other reasons, myelography is not considered an acceptable procedure in cases of chronic low back pain without sciatic pain.

Intraspinal surgery has not been employed in the treatment of suspected ruptured disk causing low back pain without radiation down the lower extremity.¹ At the present time spinal fusion is the only recognized operation for pain of this type.

1. Dr. Walter Dandy stated that he had performed disk excision in 26 cases of low back pain not associated with sciatic pain (Southern Surgical Association, New Orleans, Dec. 7, 1943).

Mechanism by Which Ruptured Lumbar Disk Causes Sciatic Pain and Other Symptoms.—A lower lumbar disk is more liable to rupture into the spinal canal than elsewhere because the annulus fibrosus is weakest posteriorly. When such a rupture occurs, the nucleus pulposus escapes into the spinal canal. Later, or at the time of the original injury, portions of the torn layers of the annulus fibrosus also herniate into the canal. For anatomic reasons escaping disk tissue generally protrudes to one side of the midline. Such extruded tissue is usually not free to migrate down the spinal canal but is held at one point by areolar tissue and the plexus of veins on the anterior wall of the canal. Eventually, these tissues form a definite capsule for the extruded fibrocartilage. Such a lesion is called a disk nodule (knorpelknoten of Schmorl, 1926). In other cases a nodule is not formed, but a part of the disk (which has already lost most of its nucleus pulposus) bulges considerably into the spinal canal when the patient is erect because most of the deeper layers of the annulus fibrosus are broken.

Both types of rupture, if sufficiently large and strategically located, will stretch or compress a nerve root. Early irritation of a nerve root by rupture of the fourth or fifth lumbar disk produces pain in the region of the hip or buttock. More severe damage to the root causes pain along the course of the nerve fibers, usually as far as the ankle and sometimes as far as the toes. Since the fibers of these nerve roots help to form the sciatic nerve, it is acceptable practice to refer to this type of pain as "sciatica" or "sciatic pain." Technically, it should be spoken of as fifth lumbar radiculitis (or first sacral radiculitis).

Severe compression of a nerve root by a ruptured disk causes subjective numbness and sometimes demonstrable sensory changes in the distribution of the root (calf, foot, toes). Also impaired function of the nerve root results in interruption of tendon reflexes and weakness of muscles.

Diagnosis of Ruptured Intervertebral Disk Causing Sciatic Pain With or Without Low Back Pain.—As previously mentioned, a ruptured lumbar disk can produce back pain without radiculitis (sciatica). Conversely, a ruptured disk can cause pain down the lower extremity without low back pain. In the majority of the latter type of cases the low back pain has run its course and only the sciatic pain persists. Often the disappearance of the back pain is simultaneous with the onset of the leg pain. However, most patients with a ruptured disk have both back and sciatic pain, with one or the other predominating. In the majority of cases the pain in the buttock and hip is dominant. Rarely the pain in the calf overshadows the other discomforts.

The diagnosis of ruptured disk causing sciatic pain is based largely on the history and the patient's explanation of the character and location of the pain. The principal point to inquire about in the history is the occurrence of attacks of low back pain over a period of months or years.

The second point of major importance regards trauma. Did an injury precede the first attack of lumbago? Were successive attacks brought on by lifting? Did a final back injury or strain initiate the radiation of pain into the hip and thigh?

Of fundamental importance in diagnosis is the location of the pain in the back and leg. In ruptured fourth

and fifth disks the pain is located on the posterior or lateral aspects of the thigh and on the posterior, lateral or anterolateral aspects of the leg. Pain in the big toe points to a ruptured fourth disk; pain in the little toe implies a ruptured fifth disk. Pain along the medial and anterior aspects of the thigh suggests rupture of the second or third lumbar disk (4 per cent of cases). Cases of rupture of the first and second lumbar disks are surgical curiosities.

Sensory changes (numbness, tingling) are present in patients with severe sciatic pain. These are usually experienced in the calf, foot and toes and correspond to the dermatome of the compressed root. Hypesthesia and hypalgesia may at times be demonstrated with careful tests.

If the fifth disk is ruptured, the ankle jerk may be diminished or absent. Ruptured fourth disk rarely disturbs this reflex. Ruptured third disk may impair the patellar reflex. Atrophy of muscles is not ordinarily detectable in cases of ruptured disk, but weakness can often be demonstrated by asking the patient to stand on the heel or the ball of the foot.

Since pain in the hip and leg is caused by mechanical compression or stretching of a single (rare exceptions) nerve root, certain physical factors aggravate or decrease the pain. Coughing, sneezing, straining at stool, flexing the neck, bending, lifting and sitting for long periods are such factors. One or more of these is described by every patient. Certain positions, such as lying down, may give partial relief. Most of these patients limp.

In the majority of cases of sciatica due to ruptured disk the leg pain is increased by flexing the thigh with the knee extended. Prolonged compression of the jugular veins (Naffziger test) also increases the leg pain and the paresthesias.

In at least 90 per cent of cases severe enough to require operation there is spasm of the back muscles, back tenderness or both. Lumbar lordosis may be completely absent, and there may be a list of the lumbar spine toward or away from the side of the sciatic pain. Pressure on the fourth or fifth lumbar spinous processes or just to one side of these discloses tenderness and increases the back pain. It may cause radiation of pain into the hip and on down the leg. The explanation for the latter phenomenon is that pressure is transmitted directly through the interlaminal space to the nerve root, which is already incarcerated between the protruding disk and the ligamentum flavum.

It is axiomatic that every candidate for disk surgery should have adequate roentgenograms of the lumbosacral portion of the spine. Omission of such films has resulted in failure to recognize metastatic carcinoma, primary tumor of a vertebra and spondylolisthesis. It is also important that every patient should have the benefit of orthopedic examination and opinion before submitting to disk surgery. In the atypical cases the orthopedist may even be able to disprove the diagnosis of ruptured disk and avert a negative exploration. Moreover, it is still believed by many that certain patients with chronic back pain and sciatica require spinal fusion as well as removal of the diseased portion of the disk. If a patient is unwilling to undergo the combined operation, he should at least be aware that persistence of back pain after disk removal is a possibility in his case. The decision for fusion is based principally on a long history of severe back disability.

the demonstration of malformations of the lumbosacral joint and knowledge of the fact that the patient must earn his living by heavy labor.

Of fundamental importance in the problem of ruptured disk with sciatic pain is the fact that nonsurgical orthopedic treatment may, and frequently does, relieve all or most of the pain either temporarily or permanently. It would therefore seem unwise to deprive patients of at least a brief trial of orthopedic management before advising hemilaminectomy.

At the present time the diagnosis of ruptured intervertebral disk is usually based on the history, the description of the current symptoms, roentgenographic, neurologic and orthopedic findings and the type of response to orthopedic treatment. However, some surgeons prefer to exhaust the possible diagnostic aids, which include spinal fluid analysis and myelography. At least 50 per cent of cases of ruptured disk have an increase in total protein content but no other changes. Fluoroscopic studies of the spine after intrathecal injection of radiopaque iodized oil disclose the majority of ruptured disks that are causing sciatic pain. However, many disk nodules are placed so far laterally that they are not visible in the myelogram. Visualization of the dural sac after the injection of air is practiced in only a few clinics because of technical difficulties. In general, it can be said that most disk surgeons use spinal puncture and myelography only in doubtful or atypical cases, including those of suspected rupture of the second and third disks.

Differential Diagnosis of Sciatica Due to Ruptured Intervertebral Disk.—Sciatic pain without back pain can be produced by various lesions of the sciatic nerve. Such lesions include direct injury to the nerve and adjacent tissues from fractures and bullet wounds of the pelvis. In these cases the paralysis and anesthesia are much more striking than in cases of ruptured disk. Painful neuritis of the sciatic nerve can also be produced by exposure to cold and by infection or intoxication (alcohol, lead, arsenic, puerperal infection and infections of the teeth, tonsils and prostate gland). Such cases are now only infrequently encountered. The once popular diagnosis of toxic sciatic neuritis used to include all cases of ruptured intervertebral disk. In true neuritis of the sciatic nerve there is tenderness along the nerve trunk and complete absence of symptoms and signs referable to the back. Sciatic neuritis may resemble ruptured disk radiculitis in all other respects except that it is usually of only a few weeks duration. Flatfoot has been established as an indirect cause of leg pain. Inflammation of the sacroiliac joint or the overlying piriformis muscle can cause sciatic pain by direct involvement of the sciatic nerve. Likewise a hypertrophied ligamentum flavum can produce leg pain by compressing a nerve root in its intervertebral foramen. These and other infrequent or questionable causes of sciatic pain should be considered in turn by the orthopedist when studying alleged cases of ruptured intervertebral disk, particularly when an atypical syndrome is presented.

Tumors of the cauda equina may cause sciatic pain, but never does such a tumor produce the complete syndrome of ruptured disk. Conversely, a large protrusion of a disk may compress the cauda equina and simulate tumor. Obviously, a tumor of a nerve root in the intervertebral foramen (extremely rare) or a

bone tumor (metastatic carcinoma, sarcoma) which compresses the nerve within its foramen would mimic the syndrome of a ruptured disk and make a correct differential diagnosis difficult.

Of great assistance in the differential diagnosis is knowledge of the fact that ruptured disk is relatively infrequent in women (less than one third of cases) and is almost nonexistent after the age of 50.

Congenital malformations of the fifth lumbar vertebra, including spondylolisthesis, often produce both low back pain and unilateral or bilateral leg pain. The pain in the leg rarely extends below the knee, as it is reflected pain and not referred pain due to compression of the nerve in the lumbosacral foramen. However, real sciatic pain may be associated with spondylolisthesis, in which case the pain is caused either by an associated rupture of the lumbosacral disk or by pinching of the nerve in its foramen.

Arthritis of the spine, a diagnosis often used erroneously to explain cases of sciatica due to ruptured disk, sometimes imitates the disk syndrome. However, the leg pains are usually diffuse and limited to the hips and thighs. Almost never is there numbness in the calf and foot. Unlike cases of ruptured disk, the back pain is not localized to one region and the orthopedic findings are entirely different. Moreover, disabling arthritis usually occurs in an older age group. For these reasons the roentgen demonstration of moderate arthritis of the spine should not mislead us when the typical signs and symptoms of ruptured disk are present.

In summary, it must be assumed that a patient has a ruptured intervertebral disk if he is partially incapacitated by chronic or recurring pain in the lower back and pain which radiates from the hip to the calf of one or both lower extremities. Although the other possible causes of this syndrome should be considered, particularly (1) spondylolisthesis, (2) metastatic carcinoma, (3) tumor of the cauda equina and (4) congenitally defective fifth lumbar vertebra with resulting destruction of the articular process, the burden of disproving the diagnosis of ruptured disk rests largely on the orthopedic surgeon.

In closing, I would like to refer to the roles played by the orthopedic surgeon and by the neurosurgeon in the diagnosis and treatment of sciatic pain associated with low back pain. Disease of a disk is fundamentally an orthopedic problem and should be of no interest to the neurosurgeon unless and until nerve root compression and incapacitating sciatica develop. The management of recurring back pain, with or without mild hip and sciatic pain, consists of such measures as physical therapy, bed rest, leg traction, plaster jackets and back braces. These procedures are effective in getting a high percentage of patients back to work. In most communities, by mutual agreement, the orthopedist transfers the patient to the neurosurgeon when it becomes apparent that disk removal is required. Such cooperation is of the utmost importance to the patient and is evidence of the high degree of specialization that the orthopedic profession has attained. The neurosurgical fraternity should make equal efforts, in the interest of the patient and its own integrity, to cooperate with the orthopedists in the diagnosis and management of cases of ruptured disk and should avoid the tempting short cut of immediate laminectomy in all cases coming to its attention.

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BACK PAIN

IN DISEASE OF THE GASTROINTESTINAL AND
ACCESSORY GASTROINTESTINAL TRACT

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Patients who have maladies involving digestive or accessory digestive organs, such as the gallbladder or the pancreas, frequently complain of pain in the back. Nor is this complaint of minor importance symptomatically to many of these patients. Indeed it is often the presenting, or even the sole, complaint. It may overshadow other symptoms in severity, and only careful evaluation will elicit the information that it is but one of the manifestations of a disease located in the gastrointestinal or accessory gastrointestinal tract. All of the diseases involving these tracts may cause pain referred to the back, and much information of the highest diagnostic and prognostic importance will be lost if such distress is not evaluated carefully. Accurate localization of the involved organ or of erosive progression of histopathologic processes or even the detection of involvement of neighboring organs in the course of progression of a disease may be possible by means of critical scrutiny and proper evaluation of references of pain from the epigastrium to the thorax, neck or back.

A CONSIDERATION OF MECHANICS AND PATHWAYS
OF PAIN IN ABDOMINAL DISEASES

Our objective in writing this paper is to set forth certain clinical facts regarding pain and especially back pain which we utilize daily in our evaluation of patients' complaints. Thus, for instance, if the patient who has duodenal ulceration states that his previously mild and poorly localizable epigastric two hour postprandial pain has become more severe, has lost some of its rhythm and is now felt in the right upper quadrant and from there is referred into his thorax and the right side of his back, we assume that this ulcer has spread to involve tissues contiguous to its place of origin. Morley¹ would explain the mechanics of this shift of pain or, as he termed it, referred pain as due to the fact that such painful impulses are now relayed to the spinal cord over branches of the "sensory spinal nerves" which supply the parietal peritoneum and some of the appendages of the posterior abdominal wall and tissues contiguous to the abdominal viscera, and that the impulses are transmitted to superficial branches of such nerves as, for instance, the intercostal nerves.

Morley expressed the belief that "referred pain only arises from irritation of the nerves which are sensitive to those stimuli that produce pain on the surface of the body." We have accepted the fact that the spread of disease processes from viscera into tissues guarded by spinal sensory nerves can, and frequently does, result in a shift of pain into potential pathways of this group of nerves. This is of practical clinical importance from diagnostic, therapeutic and prognostic standpoints.

The "referred" pain of peptic ulceration, however, does not always indicate that such an ulcer has pro-

gressed beyond the confines of the viscus. In 1934 one of us² studied a series of about 400 peptic ulcers, surgically verified as to location and involvement of tissue. More than 90 per cent of patients who had penetrating lesions exhibited definite shift of original pains into secondary regions, such as the thorax or the back. Most instances of uncomplicated peptic ulcer did not exhibit any shift of pain into secondary regions. The larger or the more inflammatory ulcers, however, exhibited some tendency to produce referred pain from the epigastrium to the thorax or back. Because of this the statement then was made "I am not convinced that pain transmitted over the splanchnic route cannot be projected into secondary areas."

This lends further clinical corroboration to the suggestions made by Leriche,³ Lewis,⁴ Palmer⁵ and others that nerves originating in abdominal viscera and coursing from there along splanchnic branches of the sympathetic nerves to the spinal cord are capable of mediating pain referred into secondary regions, and indeed (Lewis) that they are fundamentally no different from the sensory spinal nerves. This might lead to the implication that the great highway of traffic of impulses from viscera to spinal cord over the sympathetics is regularly no differently sensitive than are the nerves of the cutaneous system. It would be a bit difficult to correlate this with clinical facts, at least so far as gastrointestinal diseases are concerned. It is almost universally true that shallow, well localized intravisceral disease which would engage afferent nerves using the splanchnic route produces distress which is poorly localizable and but seldom referred with detailed directional consistency from its place of origin into secondary regions. Furthermore, it is difficult to imagine the dilemma of the cortex being required to parse, analyze and appease all the heterogeneous impulses thrust on it by the protesting mucosa of the gormandized human stomach if its nerves were no less differentiating or discriminating than are those supplying the skin. It is suggested that impulses from viscera running along splanchnic pathways, admittedly sensory pathways, ordinarily utilize specialized stimuli to initiate and appreciate painful impulses. Hurst and Stewart⁶ expressed the belief that the only stimulus adequate to produce visceral gastric pain is tension of the nerves on the muscular wall of the viscus.

Palmer has shown that visceral pain may be induced by injections of 0.5 per cent hydrochloric acid into the stomachs of patients having gastric ulcers. It has also been demonstrated by Dragstedt and Palmer⁷ that rubbing the serosa overlying a duodenal ulcer will produce pain. In all probability there are many stimuli adequate to cause pain along sympathetic routes if the summation of impulses is sufficiently irritative, widespread or prolonged to activate and charge the pain receptors spread out through the visceral wall. Under such circumstances the entire sensory pathways making up the involved segment of the spinal cord could participate in this pain interpretation, the more differentiating

2. Rivers, A. B.: Pain in Benign Ulcers of the Esophagus, Stomach and Small Intestine, *J. A. M. A.* 104:169-173 (Jan. 19) 1935.

3. Leriche, R.: Des douleurs provoquées par l'excitation du bout central des grands splanchniques (douleurs cardiaques, douleurs pulmonaires) au cours des splanchicotomies, *Presse méd.* 45:971-972 (June 30) 1937.

4. Lewis, T.: Pain, New York, Macmillan Company, 1942, p. 140.
5. Palmer, W. L.: The Pain of Peptic Ulcer, *A. Research. Nerv. & Ment. Dis.* 23:302-326, 1943.

6. Hurst, A. F., and Stewart, M., cited by Morley.
7. Dragstedt, L. R., and Palmer, W. L.: Direct Observations on the Mechanism of Pain in Duodenal Ulcer, *Proc. Soc. Exper. Biol. & Med.* 29:753-755 (March) 1932.

From the Division of Medicine, Mayo Clinic, (Dr. Rivers).
This paper, in a symposium on "Backache," is published under the auspices of the Section on Orthopedic Surgery.
1. Morley, J.: Abdominal Pain, New York, William Wood & Company, 1931, p. 174.

or sensitive of these being the ones clamoring the loudest and making the most impression on the patient's consciousness.

A review of the various hypotheses regarding abdominal pain brings into prominent view several facts which are of great clinical interest and importance. Pain impulses from viscera to spinal cord use not one but several important traffic highways. Probably the most important normally is along sensory nerves in the splanchnic branches of the sympathetic nerves. Some specialization of stimuli adequate to produce pain is essential in this route. Most likely, unusually potent stimuli cause such pain to be referred at times into regions distant from their point of origin. Thus back pain might occur in cases in which lesions involve the gastrointestinal or accessory gastrointestinal tract even though the lesions remain confined to their place of origin within the visceral wall. A referred pain, however, usually indicates an extensive lesion. Such back pain is as a rule poorly localizable, although maintaining some segmental relationship, and may be felt bilaterally.

Of equal clinical importance is the "emergency" highway using spinal somatic nerves. The trivial irregularities of visceral disturbance are probably within the realm of the splanchnic nerves. With invasion of tissue contiguous to viscera, the nerves guarding these regions come into use. Thus the lesion comes directly into the scope of the spinal somatic nerves which innervate parietal peritoneum and some of the appendages of the posterior wall, such as part of the mesentery and mesocolon (Morley). If clinical experience is dependable, this results in more definitely localizable referred pain, frequently finding its way into the potential superficial references of this same involved nerve. This has been true so consistently that when a patient who has a known lesion in the gastrointestinal tract and who formerly experienced a poorly localizable epigastric pain complains that the pain recently has become more sharp or cutting than formerly, that it is continuous, that it is associated with tenderness, that it is now more severe unilaterally than it was and that it is felt in the back ipsilaterally, we assume that we are dealing with a penetrating type of lesion. Such a pain usually is localized accurately and corresponds segmentally with the intra-abdominal region invaded by the penetrating lesion.

A third important pathway for pain which can be used in disease involving the upper part of the abdomen is the phrenic nerve. Gastric lesions progressing to involve regions supplied by this nerve are likely to produce a pain referred into the shoulder tip or over the suprasternal or supraclavicular region.

Sensory impressions from the digestive or accessory digestive organs may also reach the patient's consciousness along the ganglionated chain and aortic plexuses or perhaps even along the vagus nerves.

We have dwelt at some length on the more important nervous pathways involved in diseases of the gastrointestinal or accessory gastrointestinal tract. We have also discussed some of the factors dealing with the mechanics of production of pain in such diseases. This we did because we felt that it was an essential background to the discussion of back pain in gastrointestinal diseases.

Several times in this paper we have referred to peptic ulcer as illustrating certain characteristics of pain. What applies to peptic ulcer applies equally well to other lesions included in this discussion. The mechanics is the same.

ORGANS INCLUDED IN THIS DISCUSSION

The organs involved primarily or in a contributory sense in the function of the gastrointestinal or accessory tract would include too many anatomic structures for discussion in this paper. We shall limit ourselves therefore to those more or less directly contiguous to it, such

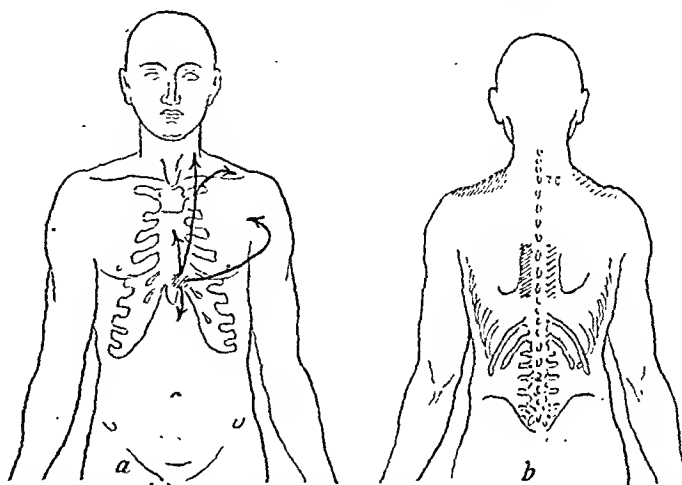


Fig. 1.—Locations of origin and reference of pain produced by lesions involving the lower part of the esophagus. In *a* the shading indicates the location of original pain and the arrows indicate the directions of reference. In *b* the shading indicates the regions to which pain is referred.

as the esophagus, stomach, small bowel and colon, as well as the liver, bile ducts, gallbladder and pancreas. In diseases of some of these, such as the small bowel, back pain is rarely noticed; in diseases of others, such as the pancreas, it frequently is the most prominent and occasionally the sole complaint.

Esophagus.—In a recent article dealing with pain in diseases of the esophagus, Moersch and Miller⁸ suggested a division of the esophagus into an upper and a lower part to simplify the consideration of its symptoms. Lesions of the upper part are usually associated with pain which is fairly well localized over that part of the sternum which corresponds segmentally to the position of its causative lesion. If present, pain in the back has a similar distribution. The distribution of pain due to lesions of the lower part of the esophagus (fig. 1) is more complex than that of pain due to lesions of the upper part, probably because of their proximity to the diaphragm. In such instances there is a wider reference of pain into secondary regions.

(*a*) **Carcinoma:** Carcinoma of the esophagus produces pain, especially when it is obstructive, ulcerating or infiltrating into the contiguous structures. The quality varies from a mild burning sensation to an excruciating agony. Frequently the pain is localized over the midportion of the anterior thoracic wall, and extension to the interscapular region is often observed. At times the pain in the back is the chief complaint. The pain is felt more frequently to the left than to the right of the spinal column, although right-sided or bilateral localizations do occur. Malignant lesions of the lower part of the esophagus occasionally cause extension of pain into the neck or the face.

(*b*) **Esophagitis:** The pain produced by esophagitis is mild. It is distributed over the anterior and posterior aspects of the thorax in regions roughly corresponding segmentally to the diseased part. Upward extension of the pain is sometimes noted. There may be slight aggravation of the pain associated with swallowing.

8. Moersch, H. J., and Miller, J. R.: Esophageal Pain, *Gastroenterology* 1: 821-831 (Sept.) 1943.

(c) **Cardiospasm:** The pain of cardiospasm may be sharp and may be located over the left lower costosternal articulations and extend directly "through and through" to the back. At times the back pain extends upward into the interscapular region. Reference of the pain into the neck, ears, face, shoulder, left arm and occasionally right arm is sometimes found. For the discussion of its underlying mechanisms we refer to the paper by Moersch and Miller.

(d) **Diaphragmatic Hernia:** Diaphragmatic hernia is fairly common. In hiatal hernia, pain may be the most prominent symptom. Its presence does not necessarily denote the presence of an ulcer in the herniated part of the stomach. The pain is usually most intense infrasternally to the left of the midline and in the back. The referred pain may follow the left costal arch or it may be perceived as stabbing "through and through" to the thoracic spinal region." At times—and this seems to be especially the case if the hernia is small—the pain extends upward into the interscapular region or higher into the neck, the jaws and the ear, and this more frequently on the left than on the right side. The pain has been observed to start in the back, extending upward and around the left side, and in the end involving the entire left side of the thorax. Contrary to the general belief, small hernias may be the cause of extremely severe pain. The extension of pain into the shoulder and neck in cases of diaphragmatic hernia is usually in the left phrenic distribution, although occasionally, and especially if incarceration of the hernia occurs, the right phrenic region also is involved. The pain of an incarcerated hiatal hernia is extremely severe and often widespread. It may originate substernally or in the midthoracic spinal region in the back. The pain may be limited to the back. At times the entire left side of the thorax is full of severe pain, and this may spread to involve the right side. Occasionally, probably because of involvement of the peripheral portion of the diaphragm, there is extension of pain over the upper part of the abdomen.

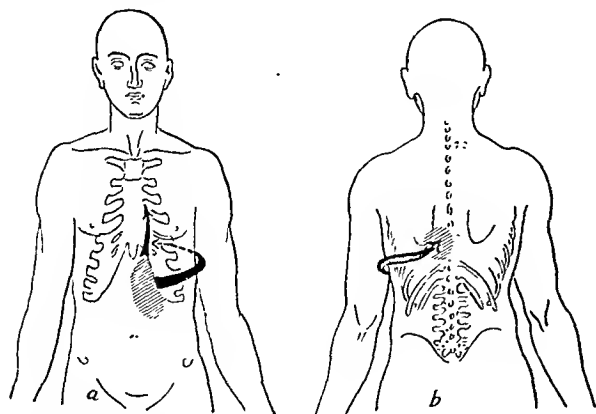


Fig. 2.—Distribution of pain produced by gastric ulcer. In *a* the shading indicates the usual location of pain and the arrows indicate the directions of reference. In *b* the shading indicates the region to which referred pain shifts most frequently.

Stomach.—(a) **Gastric Ulcer:** As has been pointed out earlier in this paper, size, acuity and penetration are the most important factors determining localization, distribution and the character of the pain in peptic ulcer. Gastric ulcer will produce distress varying from a gnawing to a sharp pain, felt most frequently in the left side

of the epigastrium (fig. 2). It may be referred laterally to the back or extend as a dull pain "through and through" to the back. Although this shifting of pain is not an invariable sign of penetration into tissue contiguous to the stomach, it occurs more often when such invasion has taken place than when it has not. The

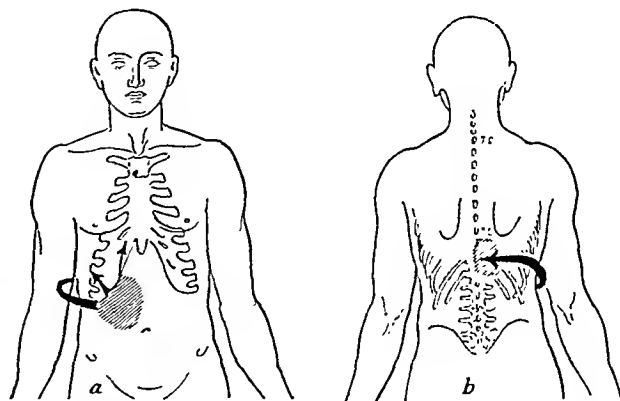


Fig. 3.—Distribution of pain produced by duodenal ulcer. In *a* the shading indicates the region where pain is felt most frequently and the arrows indicate the directions of shift into secondary regions. In *b* the shading indicates the most frequent location of back pain in the extensive or the penetrating type of duodenal ulcer.

back pain then may be very severe, and it is more often felt to the left than to the right of the lower thoracic portion of the spinal column.

Sudden severe pain in the back may be one of the signs of acute perforation. Its distribution depends partly on the course followed by the escaping gastric contents. Pain extending into the left shoulder and the neck is evidence of deep penetration with involvement of phrenic innervation.

(b) **Gastric Carcinoma:** Shifts of pain as described for gastric ulcer also occur in cases of gastric carcinoma. This lesion is notorious for the almost complete absence of warning pain. When in such cases pain begins to be an outstanding symptom—particularly if this pain is referred into secondary regions in the thorax and back (same region as in gastric ulcer)—it is almost certain that the lesion has invaded contiguous structures and therefore has become inoperable.

Duodenum.—(a) **Duodenal Ulcer:** The pain of duodenal ulcer is felt in the pit of the stomach or, more often, it is vaguely localizable to a region to the right of the midline and slightly above the umbilicus (fig. 3). If the pain extends from there into secondary regions, this occurs usually to the right costal margin into the thorax and around to the back. When the pain is severe it may extend "through and through" to the back. This occurs occasionally in cases of large, acute ulcers associated with extensive duodenitis and usually when the ulcer has penetrated to invade contiguous tissues. Localization of the dorsal pain is usually at the level of the ninth and tenth thoracic vertebrae to the right of the spinal column. The pain of perforation of a duodenal ulcer is identical with that of perforation of a gastric ulcer. A shift of pain due to duodenal ulcer to the left usually indicates penetration to involve the pancreas (a bilaterally placed organ).

(b) **Carcinoma of the Duodenum:** Primary uncomplicated carcinoma of the duodenum is an extremely rare disease and is seldom responsible for pain in the back. Occasionally, carcinoma of a neighboring structure invades the duodenum and this may cause deep-seated back pain in the lower thoracic region.

Jejunum and Ileum.—(a) *Gastrojejunal Ulcer:* Occasionally a patient on whom gastrojejunostomy has been performed will complain of recurrent symptoms of ulcer (fig. 4). He localizes his pain over an area to the left of the umbilicus, and this pain frequently extends into the flank to a region just to the left of the

diffuse lumbar back pain may occur in cases of ulcerative colitis. However, it is so overshadowed by other symptoms, such as abdominal pain and bloody diarrhea, that only careful questioning will elicit mention of it. Only when the disease becomes very extensive or exhibits penetrating characteristics is back pain very often noticed.

(c) *Carcinoma of the Colon, Sigmoid or Rectum:* Back pain in cases of carcinoma of the colon, sigmoid or rectum may be a very important symptom. It usually signifies a penetrating type of lesion. Carcinoma of the rectum may produce pain in the sacral region (fig. 5 a), whereas carcinoma of the sigmoid often produces pain in the lumbar region (fig. 5 b). Rarely the back pain may be the only complaint, as is demonstrated by the following case:

CASE 1.—A man aged 61, two years prior to admission, had suffered onset of pain over the lumbar region as indicated in figure 5 b. At that time he noticed blood and mucus in the stool. One year later, obstructive features developed. These were of gradually increasing severity. The patient lost weight. Frequently bloody stools were noticed. At operation a perforating carcinoma of the second portion of the sigmoid was found.

Unfortunately, carcinomas of the ascending, transverse and descending colon seldom produce much pain except after the lesion, during the progression of its erosion, becomes fixed to a neighboring structure. Then there may result severe localizing pain, which frequently is felt through to the back, usually ipsilateral to the portion of the organ involved. The pain associated with mechanical disturbance caused by inadequate emptying of the bowel may be severe and may be felt in the back; however, unless penetration has occurred the distress is usually diffuse and poorly localized.

Pain over the sacrum, though rare, may be observed in association with carcinoma of the rectum, as demonstrated by the following case:

CASE 2.—A man aged 42 had noticed pain over the sacral region (fig. 5 a) six months prior to admission. Occasionally he had noticed bloody stools. There had been a gradual loss of weight and strength. Proctoscopy revealed a mass in the rectum. At operation a perforating rectal carcinoma was found.

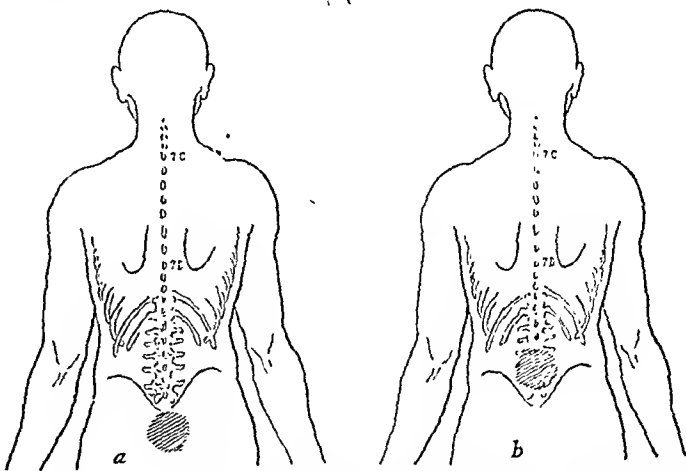


Fig. 5.—Location of back pain in cases of penetrating carcinoma of the rectum or sigmoid. Shaded areas indicate location of pain in cases of (a) carcinoma of the rectum and (b) carcinoma of the sigmoid.

Pancreas.—(a) *Acute Pancreatitis:* Pain associated with acute pancreatitis usually is extremely severe. It is usually maximal over the epigastrium and extends through to a rather diffuse region, frequently bilaterally located over the lower thoracic segment of the spinal column. The pain may also follow either costal arch, but more often it is described as going directly through

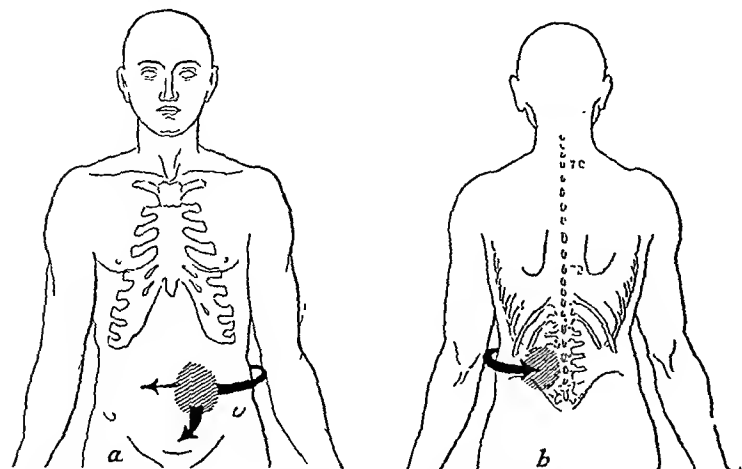


Fig. 4.—Distribution of pain produced by gastrojejunal ulcer. In a the shading indicates the region where pain is felt most frequently and the arrows indicate the directions of shift. In b the shading indicates the location of back pain in cases of penetrative stomal ulcer.

upper lumbar segment of the spinal column. Occasionally the back pain is felt over the entire upper lumbar segment. The extension of pain caused by gastrojejunal ulcer occasionally is mistaken for ureteral colic. At times such pain is referred into the inguinal regions. The pain comes on several hours after the ingestion of food and is relieved by the use of alkali or food. The distress varies greatly in severity. At times it is described as a disturbing sense of fullness and at other times it is very sharp.

(b) *Meckel's Diverticulum:* Meckel's diverticulum is a rare anomaly. As a result it does not produce back pain. Occasionally, however, it manifests its presence by back pain in the lumbar region and this is usually associated with pain felt anteriorly just below the umbilicus, either to the right or to the left of the midline. Ulceration may occur in the bowel contiguous to the diverticulum. This may lead to severe pain in the regions described.

(c) *Intestinal Obstruction:* A variety of causes may be responsible for intestinal obstruction. When the blocking is complete, severe abdominal pain usually occurs. With this there is frequently a severe, dull, diffuse back pain.

Colon and Rectum.—(a) *Diverticulum:* Ordinarily diverticulum of the colon does not produce any well defined symptoms. There may be some increase of irritability of the bowel manifesting itself in augmented spasticity. There may thus be flatulence and a distressing sensation of distention. At times there may be some infection associated with diverticula. Some localizing pain over the abdomen may then develop. Concomitantly there is then likely to be some back pain coinciding in location with the pain felt in the abdomen. With the formation of abscess, a complication which occurs fairly often, severe pain develops. Associated back pain is then the rule. Usually this can be utilized in arriving at accurate localization of the lesion because it corresponds quite definitely in segmental distribution to the intra-abdominal spinal nerves involved by this spread of the infectious process.

(b) *Ulcerative Colitis:* Back pain is, as a rule, not an outstanding characteristic of ulcerative colitis unless deep involvement of the intestinal wall results. Vague,

into the back. Often the back pain is more disturbing than that felt over the upper part of the abdomen.

(b) Carcinoma of the Pancreas: This frequently does not cause any pain, or only a vague epigastric distress may be present. However, here, as in carcinoma of the large bowel, pain may be the first symptom.

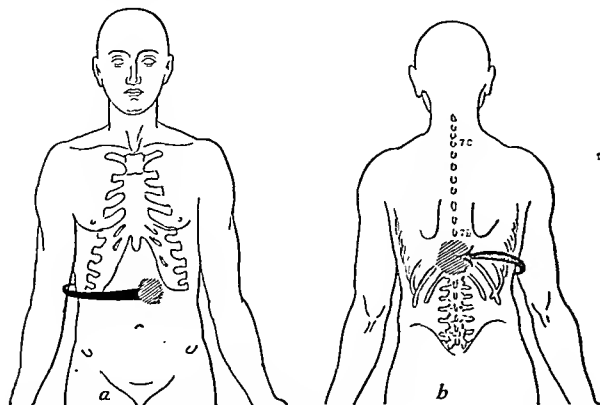


Fig. 6.—Location of pain produced by carcinoma of the pancreas (case 3). Pain originated in shaded area of *a* and was referred from there to the shaded area of *b*.

The distribution of this pain may be similar to the one described for acute pancreatitis, and fairly frequently the back pain is more severe than the epigastric distress and is noticed before the latter sets in. These patients often have found that sitting with the body bent forward eases their pain. Others find that they get some relief by lying on the stomach. The following case illustrates pain occasionally noted when there is a pancreatic neoplasm:

CASE 3.—A woman aged 39 had noted six months prior to admission a rather severe left epigastric pain, which extended from the left to the right side of the epigastrium. The anterior pain was then referred through into the back, as indicated in figure 6. This pain was a deeply located, boring type of distress. Once established, it was felt as a single pain front and back and it was demoralizingly severe. With this the patient had nausea, vomiting and fever. She was ill for several weeks; then for three months she did not have any severe pain. Two months prior to admission she observed a similar pain, which persisted. There was rapid loss of weight and strength. One month prior to admission, signs of obstruction of the biliary duct developed. At operation a carcinoma of the head and body of the pancreas was found.

Gallbladder, Bile Ducts, Liver.—(a) Diseases of the Gallbladder: The lower scapular or interscapular distribution of pain associated with disease of the gallbladder is well known. In typical biliary colic there is pain in the right upper quadrant of the abdomen fairly close to the costal margin. It is a dull, deep-seated, bursting pain which usually is projected through into the back, especially to a region over the inferior angle of the right scapula. There is a definite sense of fulness, and occasionally there are upper abdominal cramping and distention. Front and back pain are felt as a single pain. After a hypodermic injection of morphine they usually disappear at the same time, leaving but little residual tenderness. If acute cholecystitis is present, however, the pain does not disappear without residual manifestations. There is muscular spasm over the upper right quadrant. Pain is felt anteriorly over the right infracostal region and from there it is referred through or around into the right interscapular and interscapular regions. There is not only a "through and through" soreness; the entire

region overlying the lower ribs on the right is hyperesthetic.

Rupture of the gallbladder may produce an acute abdominal catastrophe that is similar in its general characteristics to that caused by perforated peptic ulcer. Fortunately, free perforation into the abdominal cavity rarely occurs. Usually leakage is slow and a walling off abscess results, or the perforation occurs into the gastrointestinal tract. With the formation of abscess, severe pain in the upper right quadrant may result. This usually is referred around or through into the right side of the back in the region of the lower thoracic vertebrae. Very rarely the pain may be in the left upper quadrant with projection over the left side of the back.

Though contralateral pain occasionally is noted in cholecystic disease, concomitant pancreatitis is more often responsible than uncomplicated cholecystic disease for this distribution of pain. It should be remembered that pain associated with disease of the gallbladder may be felt only in the back, and patients have described this as "lumbago." The following case is a good example of such an occurrence:

CASE 4.—A woman aged 21 had experienced three brief episodes of severe pain over the right inferior scapular angle in a period of two years prior to her admission. During these attacks she had also noted pain in the right side of the neck as indicated in figure 7. Several days before her visit here she had noted similar pain, to which now for the first time was added right epigastric pain. With all attacks she had had a slight elevation of temperature. At operation acute cholecystitis associated with stones was found.

(b) Biliary Pain After Cholecystectomy: Persisting or recurring pain following surgical removal of the gallbladder forms a topic which can be treated only briefly and very inadequately in this paper. After cholecystectomy, pain in the upper right quadrant which is felt through into the lower scapular region may persist because its cause may not have been cholecystic in the first place. The pain may have been due to one or more of many causes, such as radiculitis, intercostal neuralgia or a penetrating duodenal ulcer invading spinal nerves occupying the same segment of the spinal cord as the gallbladder. Retained stones in the bile

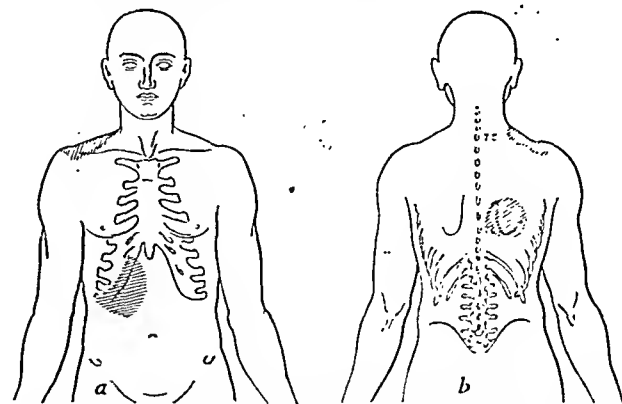


Fig. 7.—Location of pain produced by cholecystitis (case 4). The first two attacks of pain originated in shaded areas shown in *b*. During the last attack pain was felt also in the shoulder and anteriorly as indicated in *a*.

ducts or stricture may be responsible for such recurring pain. In other instances such pain may be due to some unexplained rise of intraduodenal pressure, and pain so caused may simulate in every way biliary colic caused by stones.¹⁰ Back pain—interscapular and over the lower

10. Walters, Waltman, and Snell, A. M.: Diseases of the Gallbladder and Bile Ducts. Philadelphia, W. B. Saunders Company, 1940, p. 571.

part of the scapula—is the rule, and the anterior pain is usually located just below the right costal margin.

(c) Diseases of the Extrahepatic Bile Ducts: Pain originating in the hepatic, cystic or common bile duct exhibits the same general characteristics as are noted in cholecystic disease. Calculus in the duct may produce colicky pain through the right upper quadrant of the abdomen with reference to the right lower scapular region. Inadequacy of ductal emptying caused by stricture, debris at the ampulla or neoplastic invasion of the lumen of the duct at times causes pain in the region just mentioned, but as a rule this is much less severe than that due to calculus. Inflammatory disease of the duct which spreads its infectious metabolites to tissues surrounding the ducts or abscesses in that region produce a deep-seated pain in the upper right quadrant over the lower ribs, which spreads frequently from there either around the lower part of the thorax to the back or directly through to the back. With this there is a great deal of tenderness and soreness over the upper right quadrant of the abdomen.

(d) Diseases of the Liver: Pathologic processes which involve the liver diffusely, such as hepatitis or cirrhosis, seldom cause severe pain. There is frequently the complaint, however, of an ache over the region of the liver, and this may be felt equally in the back or over the right hypochondrium. Pain in diseases of the liver seems to be mainly determined either by the extent or rapidity of the stretching of the capsule or by the involvement of contiguous tissue such as the diaphragm and peritoneum. Abscesses in or around the liver are the most common cause of severe pain. If regions supplied by the phrenic nerve are involved, reference of pain into the neck or shoulder, usually on the right side, occurs. Invasion of the peripheral portion of the diaphragm or a spread laterally or downward may cause extension of pain over the cutaneous branches of the lower thoracic group of nerves, this pain then being felt over the hypochondrium, the infra-scapular region and even as far downward as the right lumbar region. The pain may be sharp and sticking and be intensified by respiration. At other times it is described as a dull, deep-seated soreness. It is usually limited to the right side. Accurate localization of abscesses involving the liver, tissues contiguous to it or for that matter any other of the intraperitoneal or retroperitoneal tissues is frequently possible by means of careful study of the origin of the pain and its reference. With direct invasion of spinal nerves guarding these tissues by products of inflammation, their corresponding cutaneous counterparts often protest loudly and thus by deduction of the segmental distribution of such nerves it is often possible to place the diagnostic finger of localization accurately on the abscess area.

COMMENT AND SUMMARY

It has been suggested that back pain as one of the manifestations of gastrointestinal disease can result from a summation of impulses originating in visceral walls and referred to the back along the sympathetic nerves which carry such impulses to the spinal cord.

We believe that the unilateral shifts of pain arising because of penetrating lesions involving these tracts can, and probably often do, travel to the cord along branches of the spinal nerves. We believe that this is a slightly different type of pain from that usually caused by impulses arising within visceral walls, being more acute, more localizable and better limited to definite segmental distributions. In the case of inflammatory disease—and occasionally of erosive neoplastic disease

—involving retroperitoneal tissues, such as acute pancreatitis, back pain is an important symptom. Lesions in this region could involve both spinal nerves and those using sympathetic routes. In such lesions pain is deep seated, frequently severe and fairly well localized. A characteristic feature of this pain and one which is of great diagnostic importance is that patients who have such lesions are usually found to lean forward to relieve their pain. There is still another way in which back pain can be caused by disease originating in the tracts under discussion. Malignant lesions originating there may metastasize to the spinal column. In such instances the pain is usually boring, deeply located, bilaterally felt and constant. In most instances it is well to remember that back pain as one of the manifestations of a disease of the digestive or accessory digestive organs is a symptom which should be considered with great care, because as a rule it indicates that the lesion causing it is a complicated one.

It is always well to suspect disease arising in the gastrointestinal or accessory gastrointestinal tract of patients complaining of dyspepsia as one of the symptoms associated with other back pain.

Clinical Notes, Suggestions and New Instruments

POSTERIOR DISLOCATION OF THE STERNAL END OF THE CLAVICLE

D. P. GREENLEE, M.D., PITTSBURGH

It is generally recognized that vital soft tissue injury in connection with fractures or dislocations is often of more importance than the treatment of the fracture or dislocation itself. Emphasis has been placed on injuries to the brain in connection with fractures of the spine, on injuries to the lung in connection with rib fractures and on injuries to the bladder, urethra and bowel in connection with fractures of the pelvis. The relative frequency of such injuries deserves this emphasis. Retrosternal dislocation of the clavicle is so rare that little has ever been written about it. However, the fact that such dislocation may occur with encroachment on certain vital structures at the base of the neck warrants this case report.

REPORT OF CASE

R. R., a youth aged 17 years, who was admitted to St. Francis Hospital, Pittsburgh, on Dec. 11, 1938 and discharged on Dec. 16, 1938, was forcibly struck on the right shoulder from the side and rear while playing football on the afternoon of admission. At the time of the injury his muscles were relaxed, since he thought the play had been completed. Following the injury he experienced pain and tenderness over the inner end of the right collar bone, difficulty in breathing and pain on swallowing.

The difficulty in breathing was aggravated by walking, which caused a slight crowing type of breathing, and it was practically impossible to breathe with the head erect. Flexion of the chin on the chest seemed to give him the greatest relief. When put to bed he sat in the upright position with one or more pillows under the head to flex the chin on the chest.

Aside from this complaint the patient was unusually robust and healthy. Routine laboratory examination showed nothing of note. The x-ray examination of the right shoulder girdle with special attention to the medial portion of the clavicle showed an upward posterior and medial displacement of the proximal end of the clavicle to the extent of about 2 cm. There was one small fragment that was apparently broken off the superior medial corner of the clavicle. There was also a slight indentation of the right lateral margin of the trachea with a slight displacement toward the left side, indicating an encroachment on the trachea, as shown in the accompanying illustrations.

On December 13 the dislocation of the clavicle was reduced under gas and ether anesthesia. The operative diagnosis was posterior dislocation of the sternal end of the right clavicle. Open reduction of the posterior dislocation of the sternal end of the right clavicle and application of a plaster shoulder spica were done. An attempt was made to reduce the dislocation by the closed method. This was unsatisfactory, and open reduction was then done. An incision was made, extending from the upper end of the sternum to about the middle of the right clavicle, and the sternal end of the right clavicle was found to be dislocated posteriorly. It was grasped with bone forceps, and several attempts were made to reduce it, but this was not satisfactory. The right arm was then grasped and backward and upward traction made on it by the intern and forward traction made on the sternal end of the right clavicle with bone forceps. Reduction was then satisfactory. Nothing was used to produce fixation at the sternoclavicular joint. The wound was closed without drainage, and a plaster shoulder spica was applied.

The patient's postoperative course was uneventful, and a check x-ray examination showed a satisfactory reduction of the dislocation. The cast was removed five weeks postopera-

Shreiber reported the death of a patient with retrosternal dislocation of the clavicle who died from a laceration of the trachea.

Beckman⁹ and Prat⁶ each mention a case of double luxation of the clavicle (simultaneous acromioclavicular and sternoclavicular dislocations) in which the sternal end was dislocated posteriorly.



Fig. 2.—Right anteroposterior oblique view showing a shift of the medial end of the right clavicle farther behind the manubrium, indicating a posterior displacement.

The anatomy of the clavicle, particularly the strong ligamentous attachments of both the sternal and acromial ends, makes dislocation relatively uncommon and fracture much more frequent. Strong ligaments attach the sternal end of the clavicle to both the sternum and the first rib. Brown² states that 10 per cent of dislocations in the body involve the clavicle and that backward dislocation of the sternal end is the rarest



Fig. 1.—Anteroposterior view showing upward and medial displacement of the medial end of the right clavicle.

tively. The patient has engaged in vigorous athletics since operation and has had no symptoms referable to the right sternoclavicular joint.

HISTORICAL REVIEW

In 1922 Schlegel¹ reported a case of retrosternal dislocation of the clavicle and mentioned that 20 cases had been reported in the literature, including his own case. Since then several additional cases have been reported (Brown,² Tavernier,³ Nielsen,⁴ 2 cases, Wehner,⁵ Prat⁶ and Goñi Moreno⁷).

Von Stapelmohr⁸ mentions that Cooper as early as 1830 reported such a case having pressure symptoms, in which treatment was carried out by resecting the sternal head. Von Stapelmohr⁸ also mentions that Guérin in 1841 stated that all clavicular dislocations may be congenital and that he had seen the retrosternal type in an infant. According to Wehner,⁵

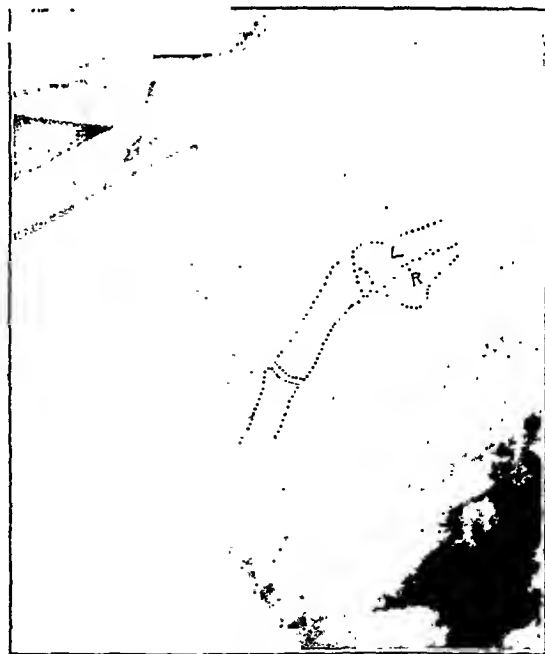


Fig. 3.—Lateral view showing definite complete posterior displacement of the medial end of one clavicle (right).

variety. Berkshina¹⁰ states that fracture of the clavicle is twelve times as common as dislocation, and of the two types of dislocations he further states that dislocation of the acromial end is four times as common as dislocation of the sternal end.

1. Schlegel, A.: Retrosternal Luxation of Clavicle, München. med. Wehnschr. 69: 511 (April 7) 1922.

2. Brown, R.: Backward and Inward Dislocation of Sternal End of Clavicle, S. Clin. North America 7: 1263 (Oct.) 1927.

3. Tavernier: Luxation retro-sternale de la clavicle, Lyon chir. 24: 694, 1927.

4. Nielsen, H.: Zur Behandlung der retrosternalen Luxation der Clavicula, Deutsche Ztschr. f. Chir. 231: 405, 1931.

5. Wehner: Zur konservativen Behandlung der retrosternalen Klavikularluxation, Ztschr. f. orthop. Chir. 55: 409, 1931.

6. Prat, P. P.: Luxation des deux extrémités de la clavicle; traitement sanglant; résultat éloigné, Mém. Acad. de chir. 62: 1009 (July 1) 1936.

7. Goñi Moreno, I.: Luxacion traumatica esterno-clavicular (retro-sternal), Bol. y trab. de la Soc. de cir. de Buenos Aires 22: 480 (July 27) 1938.

8. von Stapelmohr, S.: Ueber die habituelle Luxatio sterno-clavicularis und eine neue operative Behandlungsmethode derselben, Acta orthop. Scandinav. 3: 1, 1932.

9. Beckman, T.: A Case of Simultaneous Luxation of Both Ends of the Clavicle, Acta chir. Scandinav. 36: 156, 1925.

10. Berkshina, F. O.: Traumatic Dislocations of Clavicle, Orthop. i traumatol. 9: 11, 1935.

Sternal dislocations may be presternal, suprasternal or retrosternal, and of these varieties the presternal is the most common and the retrosternal the rarest. Rotolo¹¹ in reporting a case of suprasternal dislocation of the clavicle mentions that Morel Labbee feels that the suprasternal variety of dislocation is simply a variation of the retrosternal variety. This seems logical, as the suprasternal variety is posterior to the sternocleidomastoid muscle.

ETIOLOGY

In the acquired variety of dislocation the mechanism by which the clavicle is dislocated posteriorly is either by a direct blow over its sternal end or by a force on the posterior aspect of the shoulder directed forward and inward.

DIAGNOSIS

The diagnosis of such a dislocation is based on pain, tenderness and swelling near the inner end of the clavicle. Frequently the neck is flexed to relieve the pain and obstructive dyspnea. There may be symptoms of other complications, such as subcutaneous emphysema or brachial plexus injury. On examination the prominent sternal end of the clavicle is not felt in its normal position. There may be a depression or a soft tissue swelling which can often be felt rather than a firm bony prominence at the normal position of the sternal end of the clavicle.

X-ray examination reveals a displacement of the sternal end of the clavicle with relationship to the manubrium, and stereoscopic, lateral and oblique views help in determining whether the displacement is anterior or posterior.

TREATMENT

The treatment carried out has been far from standardized, owing undoubtedly to the scarcity of cases seen by any one man. Some of the cases, such as 1 of the cases reported by Niessen,⁴ have been of several weeks' standing before any correction has been attempted. Methods of treatment have varied from the conservative closed method mentioned in the case of Hockner and Schulze reported by Schlegel¹ and also in 1 of Niessen's⁴ cases, to radical resection of the entire clavicle in the case of Sauerbruch mentioned by Niessen.⁴

In the case treated by the closed method mentioned by Niessen⁴ redislocation occurred in two weeks and open operation had to be done.

Of the several varieties of operative procedure, resection of the sternal end of the clavicle, resection with fusion or an arthroplastic procedure has been the usual type.

Niessen⁴ does not think that resection or arthrodesis of the joint is logical and has used fascial repair from the anterior surface of the sternum to the posterior surface of the clavicle, with good results in his cases.

SEQUELAE AND COMPLICATIONS

Complications have varied from relatively mild dyspnea and substernal oppression to death from laceration of the trachea in the case mentioned by Wehner.⁶ The structures most likely to be involved are, of course, those in anatomic proximity, namely the great vessels at the root of the neck, the trachea, the pleura, the brachial plexus and the esophagus. Symptoms likely to follow injuries to such structures are swelling, pain and tenderness of the involved region, shock, dyspnea of the obstructive type, subcutaneous emphysema, brachial plexus palsy and dysphagia. In one of Niessen's⁴ cases, which was untreated for a few months before open operation, there was a residual brachial plexus palsy following operative treatment.

SUMMARY AND CONCLUSIONS

1. A case of retrosternal dislocation of the clavicle was seen.
2. The association of symptoms resulting from proximity of the retrodisplaced clavicle to the trachea and esophagus was pronounced.
3. A good result was obtained without using any means of internal fixation following open reduction.
4. Early reduction of such dislocations, usually by the open method, is the logical method to alleviate any complications and prevent any untoward sequelae.

11. Rotolo, G.: Contributo alla cura cruenta delle lussazione sterno-clavicolare, *Chir. d. org. di movimento* 17:218 (Aug.) 1932.

Council on Foods and Nutrition

ANNUAL MEETING OF THE COUNCIL ON FOODS AND NUTRITION, 1944

The annual meeting of the Council on Foods and Nutrition was held at the Association headquarters on February 11 and was attended by the following members:

Dr. George R. Cowgill	Dr. Howard B. Lewis
Dr. C. A. Elvehjem	Dr. J. S. McLester, Chairman
Dr. Morris Fishbein	Dr. Irvine McQuarrie
Dr. Philip C. Jeans	Dr. Tom D. Spies
Mr. Culver S. Ladd	Dr. Russell M. Wilder
Dr. George K. Anderson, Secretary	

In addition to members of the headquarters personnel there were present Dr. E. M. Nelson of the Food and Drug Administration and Dr. Donald A. Wallace, secretary of the Council on Dental Therapeutics of the American Dental Association.

Drs. McLester and Lewis were reelected chairman and vice chairman respectively. Among the topics which were discussed at the meeting, the following items may be of interest to physicians, manufacturers and others:

Scope of the Council.—The enactment of the Federal Food, Drug and Cosmetic Act in 1938 with provisions for adequate enforcement caused much of the effort which the Council had been exerting in maintaining high standards of production and marketing of foods to be superseded. Some time ago the decision to discontinue close interest in the staple general purpose foods was made, and this was announced at that time. It was decided to continue with the consideration of special purpose foods only, those prepared expressly for use of certain population groups or for some definite therapeutic use, and others which because of their public health significance would merit Council attention. Decision was made on the special or non-special purpose status of numerous borderline types of products, so that a sharp line can now be drawn to classify foods according to Council definition. All the concerns marketing accepted foods which will be affected by this action have been or will shortly be notified.

Activities of the Council.—It is the desire of the Council to devote more of its energies to the subject of nutrition. Further, the Council wishes to make its advice available to any of the agencies devoting their efforts to promotion of a better understanding of nutrition.

The Council recognizes the nutritional educational value of proper food advertising and still maintains its interest in the advertising of all types of foods. In particular the educational advertising of those organizations representing the cooperative efforts of the various basic food industries is considered to serve a very useful purpose in familiarizing food consumers with the nutritional merits of the various foods. Use of the Council seal will continue to be extended to this type of food advertising found acceptable.

Occasion was taken to deplore the objectionable state that has been reached in the radio advertising of the many proprietary brands of multivitamin preparations. It was felt desirable that some sort of control be exerted over the statements which are made, but at present no adequate way in which the Council can exert a restraining influence presents itself.

Mixed Vitamin Therapy.—The earlier action of this Council and the Council on Pharmacy and Chemistry in reporting on the uses of vitamins in mixtures and the composition of these mixtures was briefly reviewed. It was felt that the steps taken so far in guiding the use of vitamins were logical and desirable but that one further development needs to be completed before the problem of multivitamin preparations can be considered to be dealt with effectively. This final question entails the selection of generic names for the standard mixed vitamin preparations. Once names have been determined on, products having such nomenclature can be considered with a view to acceptance by the Council on Pharmacy and Chemistry. It is anticipated that with the acceptance of one such product, followed by others, a desirable uniformity of vitamin mixtures will be attained which will facilitate their use by the medical profession as standard reliable therapeutic compounds. (Since this discussion, a contributing step has been taken by the U. S. P. with designation of Hexavitamin and Triasyn B as the official names

respectively for a vitamin preparation containing the six commonly used vitamins with their sources indicated where appropriate and for a preparation containing the three vitamins of the B complex now recognized to be of value in human nutrition. Already one or more brands bearing these names have been submitted to the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies.)

Vitaminus in Milk.—The Council considered a report concerned with the question of addition of vitamin A to winter milk, which it is recognized may show definitely lowered content of this vitamin during the winter months in the absence of suitable feeding methods. Suitable levels of this vitamin could be secured by the addition of vitamin A concentrates, but the problems of assay control in maintaining reasonably accurate levels would be considerable, as would other difficulties which can be anticipated. In view of lack of public health need for this vitamin at present, such fortification does not appear justified. As an alternative the use of improved feeding will produce milk of 2,500 or more units to the quart. It was decided that the Council should give the agricultural and dairy groups interested in improving dairy feeding all possible encouragement.

For some time now the principle of fortifying fresh milk with the minimum daily requirements of the vitamins and minerals has been advocated by certain commercial groups. One such product has been submitted to the Council for its consideration. It is felt that from several points of view such additions are undesirable. The only vitamin addition to milk which meets with Council approval is that of vitamin D. The Council authorized preparation of a report which would express its opinion concerning multifortification of milk.

Revision of Food Charts.—The pamphlet "Food Charts," which was prepared in 1942 as part of a Scientific Exhibit sponsored by this Council and the Food and Nutrition Board of the National Research Council, has had wide distribution and usefulness. Since the time of its first preparation more recent analytic data and federal enrichment regulations have made changes in some of the food values necessary. Recommendations for the changes required were made to the Council and were adopted. It was decided to have a revised edition printed as soon as possible.

Vitamin Analysis for Council Accepted Special Purpose Foods.—As in the past, the Council will continue to require vitamin assays on accepted foods for which vitamin claims are made. In addition, information on the content of those vitamins and minerals which are considered to be present in appreciable amounts in a food, particularly the processed special purpose infant foods, will be required. This is primarily for the purpose of determining the effectiveness of the processing methods in preserving the nutritional value of the food. From this information the rating of the food in regard to its contribution of protective elements to the diet can be determined from the standards enumerated on page 16 of the Council's book "Accepted Foods."

Nutritional Value of Wheat Germ.—It is the opinion of the Council that a great many erroneous ideas are held concerning the nutritional value of wheat germ. A clearer understanding of the benefits which can be expected from use of this food substance as well as its limitations would be desirable. With this purpose in mind the Council voted to have a report on this subject prepared for publication.

Status of Food Enrichment Program.—At present the enrichment of white flour by millers is on a voluntary basis, and cooperation of about 80 per cent has been secured. Unfortunately the cheaper flours are not enriched, and it is these which are consumed principally by the low income groups and in sections of the country where general health is poor. Compulsory enrichment of all white flour would be most desirable, but this requirement does not appear to be imminent.

An order of the War Food Administration of January 1943 required that all bakers' white bread be enriched to a standard comparable to what bread would contain in thiamine, niacin, riboflavin and iron if enriched flour was used and conforming to the proposed standard of the Food and Drug Administration of May 1943. An extension of this order to include bakers' rolls will become effective May 1, 1944.

The Council heard a report of the extent to which bakers' white bread is now being enriched in compliance with govern-

ment order as shown by limited sampling surveys. In view of this report the Council passed a resolution directed to the governmental agencies charged with development and enforcement of the enrichment program urging extension of the educational and sampling campaigns with a view to obtaining more satisfactory compliance.

Recommendation for voluntary enrichment of cornmeal and corn grits has been made by the Food and Nutrition Board of the National Research Council and differential price levels set between these enriched and nonenriched corn products. So far, however, very little progress in enriching this grain food has been made, because cooperation from the corn millers has been slow in forthcoming. The general shortage of corn contributes to this delay.

Rice is another food product claiming attention for enrichment. Although its general use is not considerable, in certain areas in the South it constitutes a significant part of the diet. Enrichment of the milled rice would seem worth while, and steps to develop standards of enrichment are being taken by those interested in extending this practice.

Advertising of Special Purpose Foods.—The Council adopted the policy that advertising and promotional claims for accepted special purpose foods shall be limited to the special uses for which the food is designed.

Vitamin Content of Citrus and Tomato Juices.—In continuance of its investigation of the values for vitamin C in canned citrus and tomato juices, the Council was informed of some recent studies in this field. The vitamin content of tomato juice produced in different sections of the country was found to vary a great deal. Loss in canning is appreciable in tomato juice but is very low in the citrus juices. Under storage conditions considerable vitamin loss was found to occur over several months' time. Discussion of the vitamin C content of these juices has been carried on for some time by the Council in the hope that a standard for vitamin content could be set for determining acceptability of these canned juices to the Council. It was decided that because of the rather wide variation of values found in studies made so far and with other investigations still in progress no standard could be adopted at present. In the meantime, improvement in the processing of these juices is to be anticipated.

Nutrition in Industry.—The Council heard a very comprehensive report from the Cooperative Committee on Nutrition in Industry of this Council and the Council on Industrial Health.

This report dealt with the present status of the development of programs for dealing with the problem of nutrition in industry. Enumeration was made of the groups concerning themselves with these questions and of the considerable material which has been prepared for guidance of the persons faced with the tasks of maintaining adequate nutrition in industries.

It was stated that no satisfactory answer can be given at present on the evaluation of the use of vitamin and mineral preparations in industry. The consensus was against their indiscriminate use. Pending publication of reports of scientific studies now in progress on this problem, no further statement can be made.

The Council adopted a resolution expressing its approval of the cooperative efforts being made for improvement of industrial nutrition and policies advocated for securing this improvement. It was decided that this resolution should be published.

Labeling on Cereal Packages.—With the increasing knowledge of the nutritional content of cereal products and of foods in general, these values are being stated on the food containers. To facilitate an understanding of this information by the general public the Food and Drug Administration requires a statement of the proportion of the minimum daily requirement supplied in a specified quantity. A further statement covering vitamin or mineral content usually accompanies this, expressing the content of these nutrients in any of several units of measure and in any of several specific quantities. As a result there is complete lack of uniformity, and comparison of nutritional value by those scientifically interested is made very difficult.

The Council recommends that to improve the labeling of foods from the scientific point of view the vitamin and mineral content should be stated on the label in milligrams or international units (for vitamins A and D) per hundred grams with caloric content for the same amount.

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SATURDAY, JUNE 10, 1944

STATUS OF THE PREMEDICAL STUDENT

Under Medicine and the War in this issue of *THE JOURNAL* appears an official statement by the Directing Board of the Procurement and Assignment Service relative to the present status of the effort to secure a continuous supply of physicians. The condition seems to have reached a stalemate. Apparently the responsibility for action lies now with the Director of the Selective Service System, General Hershey. Several high officials of our government have indicated their complete sympathy with the necessity for maintaining continuity of medical education on a high standard. Apparently, however, the Secretary of War, Henry L. Stimson, and the Secretary of the Navy, James Forrestal, are not sympathetic to this need. They have said in a joint communication that the proposal to place premedical and predental students on an inactive status in the enlisted reserve corps so that they may continue their studies would provide immunity from military service for five or more years to a selected group of young men. They suggest, moreover, that the essential in the selection would be the ability of the parents to finance the education, together with the ability of the student to complete the premedical or predental courses and thereafter to qualify for entrance into approved medical or dental colleges.

Apparently the Secretary of War and the Secretary of the Navy oppose granting deferment to premedical students, notwithstanding that failure to do so will lower tremendously the number of graduates in medicine and dentistry in the years 1948 and 1949. The opposition is based on the grounds that the armed forces need young men of intelligence with the proper physical qualifications and that the immediate needs of the war for their services ought not to yield to the prospective use of these young men as doctors at a later date. They support this contention with the argument that many doctors now in the military service will be released by 1948.

An alternative suggestion has been that the Army agree to supply qualified premedical students by select-

ing from young men now in the armed forces those who had previously been engaged in a course of study in the premedical years and who had already completed at least a year of military service. This would, of course, involve selection of medical students by the Army, rather than by the medical schools. It would involve picking out young men from remote areas like the Aleutians, North Africa and the South Pacific and transporting them back home.

Up to now, government officials have apparently comprehended the need for maintaining continuous medical education of a high standard in the United States. Evidently the pressures on them have caused them to abandon this point of view and to gamble on the future of health in this country. The available statistics indicate that persistence in the policy now prevailing will mean disastrous conditions in the years to come. About 3,500 doctors die each year in the United States. If the armed forces are to take 3,330 out of 6,440 in each medical class, leaving the balance of 3,110 to be filled by women and physically defective men, the situation five years from now will be hazardous. There will be an actual deficit of physicians coming into the profession each year.

The statement that men will be released from the armed forces by that time sufficient to compensate for the deficit in new graduates shows a complete lack of comprehension of the needs of medical service. Where will our hospitals secure interns and residents? Where will the specialist branches in medicine secure the men who will be willing to undergo three to five years of additional training to qualify? Who will take care of the veterans in the greatly expanded medical care program of the Veterans Administration? Who will supply the needs of our allies and, particularly, the people of the liberated countries, where medical schools have been closed and physicians taken as prisoners to take care of the laborers from their own countries deported into Germany? What about the great program of extension of advanced medical education to our neighbors in South America? What about the tremendous needs of China for modern medical aid, which is so strongly emphasized by all of the leaders of our government? At a time when the whole world is confronted with a need for well trained physicians as never before, American officialdom is apparently willing to cut off the supply at its very source.

By June, young men now engaged in premedical education will begin to be inducted into the service. Letters pour into the headquarters office of the American Medical Association from leaders in education, from physicians and from citizens everywhere urging that everything possible be done to halt this folly.

The situation has been complicated by the fact that a committee representing the Council of the Association of American Medical Colleges and another representing the American Dental Association have agreed with

the director of the Selective Service System that the taking of young men from the armed forces after they have completed at least a year of military service will be a satisfactory solution to the problem. From this agreement the Directing Board of the Procurement and Assignment Service, the Council on Medical Education and Hospitals and many leaders in medical education strongly dissent. The statement of the Directing Board appears on page 434 in this issue. The Council on Medical Education and Hospitals is convinced that the plan cannot insure an adequate supply of qualified medical students. The argument has been offered that the Selective Service System was able to carry out a similar program successfully for the supplying of coal miners and copper miners. Any one familiar with the requirements in the field of premedical education will realize that there can be no analogy between these two situations. The continuing production of physicians of a high standard of education should have precedence because of the fundamental demand for such services at all times by the armed forces and because the needs of our civilian population now and in the future cannot be met by the education of men who are physically substandard and of women. It is, to say the least, uneconomical to spend the time, the effort and the money necessary to put a boy through a premedical course, a medical course and an internship when his physical condition is such as to indicate a lessened life expectancy and the possibility of invalidism in the future. Ten years of service to the people at the end of his career will be of far more value from every possible point of view than ten years at the beginning.

Certainly this problem is one to which the House of Delegates of the American Medical Association should give most careful and serious consideration at the forthcoming session in Chicago. Certainly it is of sufficient importance to demand that it be taken, if necessary, directly to the Congress of the United States and to the President.

COUNCIL ON RHEUMATIC FEVER

Following several preliminary sessions, a conference on rheumatic fever sponsored by the American Heart Association was held in New York City in January 1944, with some thirty delegates representing various medical, governmental and social organizations. This conference adopted unanimously two resolutions:

1. Because of the magnitude and importance of the rheumatic fever problem, this conference is strongly in favor of the extension of public programs, supported by federal, state and local funds, for the study, prevention and treatment of this disease. Moreover, we believe it essential that additional funds be secured from private sources for the purpose of special studies to increase basic knowledge of the disease, for professional education and for increasing public awareness of the problem.

2. In order to accomplish the purposes mentioned above, this conference recommends that a Council on Rheumatic Fever be

formed under the leadership of the American Heart Association, and that this council shall include representatives of interested organizations.

Following this conference, the board of directors of the American Heart Association met in February and proceeded to form a Council on Rheumatic Fever. In the formation of this council invitations are being sent to the American Public Health Association, American Medical Association, American College of Physicians, American Academy of Pediatrics and the American Rheumatism Association. A national nursing organization is to be invited and also a national agency representing social workers. It is understood that governmental agencies will be kept informed of the progress of the effort but that these agencies would prefer not to have actual representation on the council.

Plans are now under way to raise funds for organization purposes and for the support of a moderate amount of work during the first year. In the meantime the Children's Bureau is expanding the federal program for rheumatic fever on the grounds that it is a crippling disease; the definition of a child, for purposes of the Children's Bureau, is any one under 21 years of age. It is understood that the Children's Bureau's present budget for the rheumatic fever program approximates \$250,000 annually and that the average amount given to each state that participates is \$20,000. The Children's Bureau, it is reported, proposes to request a gradual increase in the total sum allotted to about \$400,000 for several years, then \$500,000 and eventually \$1,000,000 annually.

According to Dr. H. M. Marvin, chairman of the executive committee of the American Heart Association, delegates who participated in the January conference felt that the study, treatment and possible prevention of rheumatic fever and rheumatic heart disease constitute a problem far too large for private funds. They felt that rheumatic fever is just as truly a community responsibility as is tuberculosis. The council felt that its activities could be adequately supported by nongovernmental funds but also that the council would encourage and advise the use of local, state and federal funds for expanding important activities in relation to rheumatic fever.

The situation now in embryo is obviously a reflection of much of the thinking that now prevails in the United States regarding the future of health activities and the control of disease. Every physician is eager to aid to the utmost in achieving the objectives sought. However, there would seem to be need for a clear definition by the House of Delegates of the American Medical Association of the policies to be followed in determining the extent of control and assistance to be supplied by federal, state and local governments in meeting such problems.

CHILD SPACING, YOUTH AND FETAL MORTALITY

In 1925 the extensive investigations of Woodbury¹ on causes of infant mortality emphasized the opinion that a short interval between deliveries is important in increasing the fetal mortality rate. Woodbury's results were based on the statistical analysis of 8,196 births. The rate of infant mortality, expressed per thousand, was 146.7 for groups of births in which the interval since the preceding delivery was shorter than a year, as compared with 98.6 when the birth spacing was two years, 86.5 and 84.9 when the intervals were three and four or more years. Thus there appeared to be an inverse correlation between the rate of infant mortality and the length of interval since the preceding birth.

Statistical analysis of the child spacing factor as related to the rate of infant mortality has now been repeated by Eastman² in 5,150 births. The results for the one year interval group, expressed in actual figures, do not differ much from those found by Woodbury. Thus the incidence of neonatal deaths in this group was seven to ten times as high as that of groups with longer intervals between births. However, this result does not warrant the conclusion that the high fetal mortality rate is a consequence of the short birth spacing. In fact, any unselected series of pregnancies which terminate within a period of a year after a previous delivery will necessarily include a high number of premature deliveries and hence is bound to be associated with a high incidence of stillbirths and neonatal mortality. Moreover, as compared with the other groups, the one year interval group was shown to include many more mothers of the Negro race, whose fetal mortality is much higher than that of the white race. These factors had not been evaluated in the study by Woodbury, who properly eliminated other possible causes such as order of birth, age of mother and economic condition of father.

In the series with birth intervals longer than a year, Eastman's figures are different from those of Woodbury. The infant mortality rate was found to be 1.5 per cent in the two years interval, 2.2 per cent in the three years interval and 2.6 per cent in the four years interval group. The higher incidence of toxemia of pregnancy found in the groups with longer birth spacing correlated well and probably accounted for this trend in neonatal mortality. As patients included in the longer interval groups are bound to be older than those included in the groups with shorter birth intervals, the higher incidence of fetal mortality and toxemia of pregnancy in the former may reasonably be related to the age of the mother.

As pointed out by Eastman and stressed by Dieckmann and Danforth in the discussion of Eastman's paper, youth and not child spacing seems to afford the most effective protection against both fetal and maternal mortality. In the series studied by Woodbury the death rates for infants whose mothers were under 18 years of age and for those whose mothers were over 40 years of age were much higher than those of intermediate groups. The lowest death rate was that of the group between 25 and 30 years of age.

TREATMENT OF PARALYSIS AGITANS AFTER ENCEPHALITIS

Many attempts have been made recently to control or abolish the rhythmic tremors so commonly found as a late manifestation of encephalitis. If the tremor is not reduced by drug treatment, as is so often the case, a physician is justified in seeking relief for his patient, particularly if young, by surgical means. Because the nervous pathways carrying the impulses giving rise to rhythmic muscular movements, however, are only partly known, a final decision at the present time regarding the exact connecting links between the muscles and the brain suitable for interruption in an attempt to abolish tremor cannot be given. Complete agreement between neurologists, neurosurgeons and neurophysiologists has not been reached, although considerable work is being done on this problem by various investigators, among them Klemme.¹

Klemme has traced by serial sections of the brain and spinal cord a fiber tract from the premotor cortex, a part of the brain lying anterior to the motor cortex and identified by Brodmann on the cytoarchitectural map of the human cortex as area 6, through the internal capsule, midbrain, pons and medulla to the spinal cord. It is the faulty functional interrelation of the impulses passing downward over this pathway with those traveling between the basal ganglions and the spinal cord, both carrying motor impulses to a "common path cell complex," that Klemme believes gives rise to "an asynchronicity" of effort, the tremor. For normal behavior, he reports, the basal ganglions and the premotor cortex must be in balance. When lesions occur in the ganglions, particularly the substantia nigra and the globus pallidus, as following encephalitis, an asynchronicity of impulses results in tremor. By removing the normal premotor cortex, the operation advised by Klemme, a second lesion is made, the first being in the basal ganglions caused by the disease, and this "abolishes the asynchronicity and hence the tremor at rest."²

As the fibers from area 6, as do those from a less well defined area in front of it, area 8, descend in the pyramidal tract with the motor corticospinal system

1. Woodbury, R. M.: *Infant Mortality and Its Causes*, Baltimore, Williams & Wilkins Company, 1926; *Causal Factors in Infant Mortality: A Statistical Study Based on Investigations in Eight Cities*, Children's Bureau Publication, No. 142, 1925, Government Printing Office, Washington, D. C.

2. Eastman, N. J.: The Effect of the Interval Between Births on Maternal and Fetal Outlook, *Am. J. Obst. & Gynec.* 47:445 (April) 1944.

1. Klemme, R. M.: Surgical Treatment of Dystonia, with Report of 100 Cases, *A. Research Nev. & Ment. Dis., Proc.* (1940) 21:596, 1942.

2. Klemme, R. M.: The Neural Mechanism of Paralysis Agitans, *Arch. Neurol. & Psychiat.* 50:367 (Sept.) 1943.

from area 4, they are indistinguishable from the others. Section of the whole corticospinal tract at any level will abolish tremor, as shown by Bucy, Putnam, Meyers and others. Putnam has also accomplished the same result by cutting the pyramidal tract in the spinal cord. The advantage of the spinal cord operation, as pointed out by Putnam in his discussion of Klemme's paper (p. 368), is that tissue is not sacrificed. Klemme, moreover, in doing the cortical extirpation removes tissue more radically than Putnam, who takes away only 2 to 5 Gm., solely from area 6. Fulton,³ on the other hand, states that "an operation restricted to area 4 alone is the operation of choice for advanced Parkinson tremor." Whatever area is removed or wherever the tract is severed, one may agree with Putnam's statement "Concerning the clinical facts there can be only agreement." The disagreement concerns the exact nature of tremor and the nervous pathways involved. Until the mechanism is understood, no single operation can be advocated to relieve this distressing symptom.

Most investigators think that a rhythmic circuit is involved in alternating tremor but do not seem to agree with Klemme that the corticospinal tract descending through the pyramids is one arc. As section of the posterior roots or the ascending columns does not abolish tremor, one cannot visualize an afferent segment to the reflex. Putnam notes, moreover, that no rhythmic discharge has ever been elicited from the cortex by stimulation giving rise to tremor. In spite of the facts as noted by Putnam, Klemme may have at least a partial answer to a complex problem. Before accepting any surgical procedure as one sufficiently standardized, or even beyond the experimental stage, to justify recommending to a patient, further work must be reported, particularly clinicopathologic in type, and this can be assembled only slowly and with utmost care.

The whole subject up to 1940 is summarized in the papers by Bucy, Klemme, Meyers and Putnam.⁴ Only Klemme fails to report in detail his case histories. More recent work in animal experimentation by Mettler⁵ and by Kennard⁶ shows that movements of the choreo-athetotic type and tremors of the intention type may be produced by destruction of the appropriate basal ganglia and that the functional loss so demonstrated is influenced by the interruptions of connections with cortical areas 6, 8 and 4, and the thalamus and hypothalamus. The lesions produced in the animal, however, do not fully duplicate the rigidity and tremor seen in clinical postencephalitic parkinsonism.

One final word of caution should be uttered: Removal of cortical areas of the brain may be followed

by epilepsy and, if a patient is already the subject of a convulsive tendency, an operation, such as Klemme advocated, might result in an even more distressing condition than the patient's present plight.

Current Comment

PHYSIOLOGIC NORMALITY

The range of human physiologic and psychologic normality has always been difficult to determine. The need for accurate definition of the mental and physical normal is nowhere more acute than among physicians. The physiologist Ivy¹ has recently discussed this subject. "A function of the body is statistically normal or usual," he says, "when its value falls within the central 68.26 per cent of the values found in a homogeneous group (same species, race, age, sex, etc.) of persons without complaints and structural defects that are indicative of disturbed function." The 68 per cent value is chosen because persons with high and low values of function and without the symptoms of disease are to be regarded with suspicion. They should not be called abnormal, however, unless other functions and margins of safety can actually be shown to be interfered with or reduced. The complexity of the subject is staggering. The statistical and physiologic and clinical concepts of normality of aging and growth, Ivy says, are easily confused. Indeed the growth of a single person may be physiologically normal, though statistically abnormal. Slow or rapid growth revealed by the statistical method may be suspected of being physiologically abnormal but cannot be considered abnormal until a cause is found. The same is true of aging. Here, in the borderlines of physiology and medicine, is an illustration of the necessity that the practice of medicine continue as partially art rather than pure science.

PNEUMOCOCCUS TYPES AND POLYVALENT ANTISERUM

Seventy-five types of pneumococci have now been identified.¹ A recent report² on cross reactions among pneumococcus types has established a number of groupings which appear to be of antigenic importance. Fourteen groups, each including from three to ten pneumococcus types, have been established. All groups, Eddy points out, must be regarded as tentative until it is determined that the types used as immunogens stimulate the production of antibodies sufficient to meet the minimum requirements for antisera. If the use of pneumococcus antisera should ever develop importance like that before the sulfonamides came into use, the establishment of this type of grouping will prove most useful.

1. Ivy, A. C.: What Is Normal or Normality? *Quarterly Bull. Northwestern Univ. Med. School, Chicago* 18: 22 (Spring Quarter) 1944.

2. Eddy, Bernice E.: Nomenclature of Pneumococcal Types, *Pub. Health Rep.* 59: 449 (April 7) 1944.

3. Eddy, Bernice E.: Cross Relations Between the Several Pneumococcal Types and Their Significance in the Preparation of Polyvalent Antiserum, *Pub. Health Rep.* 59: 485 (April 14) 1944.

3. Fulton, J. F.: *Physiology of the Nervous System*, ed. 2, New York, Oxford University Press, 1943, p. 457.

4. *The Diseases of the Basal Ganglia*, A. Research Nerv. & Ment. Dis., Proc., Baltimore, Williams & Wilkins Company, 1942.

5. Mettler, F. A.: Extensive Unilateral Cerebral Removals in the Primate: Physiological Effects and Resultant Degeneration, *J. Comp. Neurol.* 79: 185 (Oct.) 1943.

6. Kennard, M. A.: Experimental Analysis of the Functions of the Basal Ganglia in Monkeys and Chimpanzees, *J. Neurophysiol.* 7: 127 (March) 1944.

MEDICINE AND THE WAR

PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

A REPORT ON EFFORTS TO MAINTAIN A CONTINUING SUPPLY OF PHYSICIANS

In December 1942 it was agreed by the Surgeons General of the Army and Navy and the directing board of the Procurement and Assignment Service that classes admitted to medical schools for the duration of the war should be made up of the following groups: Army Specialized Training Program students 55 per cent, Navy V-12 students 25 per cent and civilian students 20 per cent, the latter group to be made up of women and men physically disqualified or otherwise ineligible for military service.

The curtailment of the Army Specialized Training Program in April 1944 provided that medical students and premedical students in the Army Specialized Training Program should continue in training but that no more students should be admitted to the program.

It is estimated that the number of premedical students remaining in the Army Specialized Training Program is sufficient to fill only 28 per cent of the places in the classes to be admitted to medical schools in 1945. The Navy will continue to fill 25 to 31 per cent of the places.

The reduction in the Army Specialized Training Program had the effect of increasing the number of places which must be filled by civilian medical students by 27 per cent. This situation gave concern to the directing board of the Procurement and Assignment Service lest it be found impossible to secure an adequate number of properly qualified candidates for medical schools to fill the classes in the future and to keep the supply of doctors constant and adequate.

Early in April Selective Service, after conference with the Inter-Agency Committee on Occupational Deferment, ruled that premedical students acceptable to the armed services, unless accepted for admission and matriculated and entered into actual classroom work in a recognized school of medicine on or before July 1, 1944, will no longer be deferred. The Procurement and Assignment Service wishes to record the following developments which have taken place since that time:

At a joint meeting of the directing board of the Procurement and Assignment Service with the Surgeons General of the Army, Navy and Public Health Service these problems were discussed, and it was mutually agreed that the effect of these two policies on medical education would be dangerous in terms of production of physicians, continued existence of the medical schools and the effects on public health.

On April 12, at the suggestion of the Procurement and Assignment Service, recommendations were made by Mr. Paul V. McNutt, chairman of the War Manpower Commission, to Major General Lewis B. Hershey, director of Selective Service, embodying the objections and apprehensions of the Procurement and Assignment Service to this program.

On April 15 a reply from General Hershey indicated that ". . . No exceptions will be made as respects the date of July 1. We shall, as in the past, give full faith and credit to the certificates of professional colleges as to the status of students matriculated therein and engaged in actual classroom work within the school or under its immediate supervision. . . ."

On April 26 a communication was forwarded by Mr. McNutt to the Secretary of War and to the Secretary of the Navy, urging the armed services to provide some status for a sufficient number of students to fill the entering classes in medical schools.

On April 28 discussions were held by the directing board at one of its regular meetings with representatives of the War Department, and these apprehensions were stated to them and discussed with them.

On May 8 a discussion was held with Mr. James V. Byrnes, director of war mobilization, concerning this whole situation, and it was his opinion that since this matter under the law was entirely in the hands of Selective Service it was not within his province to take any action in this matter.

On May 16 the Secretary of War and the Secretary of Navy jointly advised the chairman of the War Manpower Commission that it seemed to them ". . . that the immediate needs of the war for their [students'] services ought not to yield to the prospective use of them as doctors in 1949 or thereafter, particularly when it is to be expected that the course of the war will by then make it possible to release many doctors at present in the military service. The action of the director of Selective Service in refusing these deferments was, therefore, in accord with the recommendations of the departments, and for them now to put these students into inactive reserve status would, in effect, be to defer them and so nullify the action of the director of Selective Service which we supported. . . ."

This now brings the matter up to date and in the accompanying table is submitted an estimate of what the status of medical classes will be under the program as it now exists.

Estimates of Medical Students for 1945

Total number of places in entering classes.....	6,440
Army students, 28%.....	1,790
Navy students, 25%.....	1,540
Balance to be filled by women and by men disqualified for general military service.....	3,110

Past experience suggests that it should be possible to fill 400 to 500 of these places with women students. This leaves approximately 2,600 places which, under current policies of Selective Service, can be filled only by men who are disqualified for general military service.

It is impossible at this time to predict how many of these places the medical schools will be able to fill without lowering their standards of admission. Less than 10 per cent of present medical students are physically disqualified for military service. The liberalization of deferments for men classified by Selective Service, and the discharge of increasing numbers of men by the Army and Navy, should make it possible to augment somewhat this proportion. Only time will demonstrate whether this situation will improve or deteriorate. No predictions are justified at this time for classes to be admitted in 1946 and thereafter.

At the present time the directing board of the Procurement and Assignment Service feels that it has exhausted all possibilities to secure more satisfactory arrangements to maintain medical enrolment. It presents this statement in order that the medical public may be made aware of the facts. Throughout these communications and conferences the directing board has constantly emphasized to all agencies concerned, in its opinion, the dangers of the situation. It will continue to do so.

DIRECTING BOARD, PROCUREMENT AND
ASSIGNMENT SERVICE FOR PHYSICIANS,
DENTISTS, VETERINARIANS, SANITARY
ENGINEERS AND NURSES.

ARMY

INVESTIGATION OF JAPANESE MEDICAL
DEPOT AT AN EVACUATED AIR
STRIP IN NEW GUINEA

Captain Earl W. Schafer

Flight Surgeon

MEDICAL CORPS, ARMY OF THE UNITED STATES

By means of a small liaison plane I was able to land shortly after the Japs had been driven to the hills. There were several dispensaries and large quantities of medical supplies left behind; also quantities of food.

The place had a deathlike silence and odor. When a coconut fell or a bird called one would jump, expecting a Jap sniper to rise out of the underbrush.

Most medical supplies were packed in excelsior or partitioned paper cartons inside wooden packing cases. One noticed a predominance of glass containers—glass bottles and various size vials (some 1 cc., others 500 cc.). There were packing cases full of 500 cc. vials of intravenous saline and Ringer's solution. These vials had sealed glass tips on each end. No other intravenous equipment was found. X-ray plates, cans of plaster, Petri dishes, large and small test tubes, crucibles, antiseptics with both Japanese and English names and directions on the boxes but made in Japan. There were large quantities of surgical dressings; small paper wrapped dressings and cloth bound bandages much like our Carlisle dressing. Most of them were dyed either pink or green. There were some which looked like sheets but when unfolded were a foot wide and 6 to 3 feet long and were white. Ether was put up in 50 cc. vials in small rectangular wooden boxes along with a small file. There were large canvas instrument cases about the size of an overnight bag and small nestled baskets. Several large porcelain urinals and 2 to 3 gallon clay jars colored a dull pink were found. Quantities of atabrine and insect repellent and rubber condoms were there.

Although we thought the Japs in this area were in a starving condition, nevertheless we found stacks of burlap sacks full of rice and other cereals; also there were tins of biscuit and some canned fish.

There were rather queer looking metal splints—some very much like our own Thomas splint. Rubber surgical gloves were scattered around. In another area there were piles of clothing, among which we found thick rubber gauntlet gloves with a mitten hand, gas masks, protective ointment and impregnated clothing. There were many pairs of new knee length suntan pants, fatigue hats and suits, rubber galoshes, boxes of rubber heels and leather shoes.

Several partly screened in pens were found which may have contained native pigs; at least the tracks were present.

Considering the probability that the enemy carried their surgical instruments and other more valuable equipment with them and the fact that we found such quantities and varieties of drugs and dressings, I am convinced that the Japanese medical service in the field is far more than just satisfactory.

AIR TRANSPORT MOVES WAR CASUAL-
TIES TO THE UNITED STATES

The War Department recently announced that about 700 war casualties were moved by the Air Forces Air Transport Command to hospitals within the United States during the seven day period ended April 26. The ATC will now fly all war casualties moved by air within the United States. Rapid expansion of air evacuation in this country has been stimulated by the crowded condition of the railroads and the fact that fewer medical personnel are required. Pilots fly at altitudes below 9,000 feet, although fixed and portable oxygen systems are standard equipment. Twelve new C-47s are currently assigned to this domestic operation. Members of the Medical Air Evacuation Transport Squadrons assigned to Air Transport Command are based at Wilmington, Del., and Memphis, Tenn. The usual medical "crew" on a domestic run is one flight nurse and one medical staff sergeant.

The combat air forces outside the United States, the foreign wings of the Air Transport Command and various air commands in the United States have done experimental work on this problem. In the last calendar year 173,527 sick and wounded patients were evacuated by American military aircraft throughout the world. For the total of 3,260 sick and wounded returned aboard ATC planes from war theaters to this country the hops ranged from three hours to thirteen hours of continuous flying.

The air evacuation system now makes it possible to fly a casualty from China across India, Africa and the Atlantic to the West Coast of the United States if medical necessity demands. The command has lost only 1 patient as a result of air travel. Patients for the transoceanic hauls are selected by flight surgeons. The patients' general fitness for air travel is the deciding factor. Present air evacuation plans call for all transoceanic planes of the four motored C-54 type to be equipped with the new type litters accommodating 24 patients in a plane. Loading a plane takes six to eight minutes. The new litter equipment does not interfere with the utility of a plane for other purposes; the C-54s make the flight from the United States to war theaters carrying priority cargo, mail and passengers and return with their mercy shipments.

DR. WARREN F. DRAPER ASSIGNED
TO ARMY

The War Department announced recently that Dr. Warren F. Draper, Deputy Surgeon General, U. S. Public Health Service, has been assigned to duty with the Army in the grade of Brigadier General. His duties in the Army will be concerned with public health problems of occupied countries. Dr. Draper is a graduate of Harvard Medical School and has been in the U. S. Public Health Service since 1910. During the first world war he was assigned to the Army and had charge of extracantonment sanitation in the Norfolk, Va., area. Since then he has served as Assistant Surgeon General in charge of States Relation Division of the Public Health Service, and for three years he served as state health officer of Virginia. In 1939 he was named assistant to the Surgeon General under Dr. Thomas Parran, and recently he became Deputy Surgeon General.

NEW ZEALAND ARMY HOSPITAL

The New Zealand Army Hospital, where sick and wounded American servicemen are treated and rehabilitated, is the largest hospital in the South Pacific area. Situated in a healthful, temperate climate, the hospital was built and furnished by the New Zealand government and equipped with U. S. medical supplies. The staff, consisting of physicians and nurses from Yale University School of Medicine and School of Nursing, was activated July 15, 1942 at Camp Edwards, Massachusetts.

The program for mental and physical rehabilitation of patients includes work in shops, a photographic dark room, a gymnasium, and an athletic field operated in conjunction with the Red Cross. The Red Cross recreation building has games, movies, library and an orchestra organized by enlisted men on duty at the hospital. New Zealand civilian entertainers perform for patients. The hospital's rehabilitation program has been so successful that few patients have had to be evacuated to the United States for further treatment, and many of them have been returned to duty.

MEDICAL ADMINISTRATIVE CORPS
OFFICERS

The thirty-first class of the Camp Barkeley Medical Administrative Corps Officer Candidate School graduated on May 17. Brig. Gen. Roy C. Hefebower is the school commandant.

ARMY PERSONAL

Major John H. Grindlay, formerly on the staff of the Mayo Clinic, is now on the staff of a hospital at an extreme advanced base in the Northeastern India Frontier. Mr. Keith R. Berkner is field director of the American Red Cross in that area.

MISCELLANEOUS

WARTIME GRADUATE MEDICAL MEETINGS

Additional subjects and speakers for Wartime Graduate Medical Meetings have just been announced:

At the Fitzsimons General Hospital, Denver: Morning session, Reconditioning the Soldier Patient, Col. Augustus Thorndike; Convalescent Training Program in the Army Air Forces, Major Donald Covalt; Certain Aspects of the Problem of Hepatitis, Dr. Cecil J. Watson; Peptic Uleer, Dr. Walter L. Palmer. Afternoon session, Factors to Be Taken into Consideration in Making Diagnosis of Causes of Low Back Pain, Dr. Paul B. Magnuson; Treatment of Ruptured Intervertebral Disks, Dr. J. Albert Key; Classification of the Various Forms of Colitis and Their Management, Dr. J. Arnold Bagen; Amputations: Postoperative Care and Fitting of the Prosthesis, Dr. Atha Thomas. Evening session, Ophthalmoscopy and the Diagnosis of Human Illness, Dr. Arthur J. Bedell, June 22.

At Colorado General Hospital, Denver: First day, morning session, Chronic Pneumonitis: Its Clinical Course and Treatment, Lieut. Col. John B. Grow; Gunshot Wounds of the Lungs, Major Brian Blades; Plastic Surgery in War Injuries, Capt. Radford C. Tanzer; Host-Parasite Relationships in Tropical Medicine, Dr. William C. Black. Afternoon session, Some Clinical Characteristics of Fungous Diseases, Dr. Robert A. Stewart; The Diagnosis of Coccidioidomycosis, Lieut. Col. George J. Kastlin; The Absence of Toxic Effects and Reasons for Failure with Penicillin Therapy, Lieut. Col. Frank B. Queen. Dinner meeting, Hotel Shirley-Savoy, American Medicine, Past and Future, Dr. Lewis J. Moorman, June 23. Second day, morning session, Treatment of Addison's Disease by the Implantation Method, Dr. C. F. Kemper; Functional Disturbances of the Digestive Tract, Dr. Walter L. Palmer; The Symptomatology and Pathology of Aspiration Pneumonia, Dr. Ernest E. Irons; The Emphasis on Psychosomatic, Dr. Ralph A. Kinsella. Afternoon session, Review of Clinical Experiences with Rheumatic Fever in Approximately 300 Cases: (a) Rheumatic Fever: Its Recognition in Typical and Atypical Cases, with a Note on the Clinical Significance of the Disease, Major Frank P. Foster; (b) The Value of the Electrocardiogram in the Diagnosis of Rheumatic Fever and Significant Findings During the Course of the Disease, Capt. Francis M. Kernan; (c) Treatment of Rheumatic Fever with a Note on Recent Advances, Major George C. McEachern; The Use of Penicillin and Intravenous Salicylates in Treatment of Acute Rheumatic Fever, Capt. Howard C. Coggeshall; Highlights in Geriatrics, Capt. Edward L. Bortz, June 24.

At U. S. Naval Hospital, Santa Margarita Ranch, Oceanside, Calif.: Symposium on rehabilitation: General Surgery, Comdr. E. L. Calhoun (MC), U.S.N.R.; Orthopedics, Comdr. J. D. MacPherson (MC), U.S.N.R.; Psychiatry, Lieut. Comdr. J. H. Nichols (MC), U.S.N.R.; Otolaryngology, Capt. H. P. Schenck (MC), U.S.N.R., June 21.

VETERANS OF TWO WARS SET UP
NATIONAL ORGANIZATION

A national organization of veterans of two major wars popularly known as the "Retreads," but officially incorporated under the name of "Veterans of 1917 and 1941," was recently established by Comdr. Alfred M. Glickman of Camp Thomas, Davisville, R. I. Charter No. 1 has been issued to the Camp Thomas chapter. The list of seventy-five charter members includes the names of captains, commanders and other high ranking officers, but no distinction of rate or rank appears, as all members enjoy the same rights and privileges within the "Retreads." The purpose of the organization is to "maintain and enjoy the comradeship of its members; to uphold and defend the Constitution of the United States of America; to preserve memories and incidents of the two world wars fought to uphold democracy; to perpetuate the memory of its members who made the supreme sacrifice; to foster true patriotism; to maintain and extend the institutions of American freedom; to preserve and defend the United States from all her enemies whomsoever, and to consecrate the efforts of its members to mutual helpfulness and service of their country." The organization is instituting a

movement to have created a suitable insignia to be worn by veterans of both world wars. Dr. Glickman graduated from Tufts College Medical School, Boston, in 1921, and in this war entered the Navy April 2, 1941.

MERCHANT VESSELS CARRY TRAINED
MEDICAL REPRESENTATIVE

The War Shipping Administration recently announced a goal of an adequately trained medical representative aboard every merchant cargo vessel by the end of 1944. Junior assistant purser-pharmacist's mates are being graduated from the U. S. Maritime Service Hospital Corps School at Sheepshead Bay, N. Y., as rapidly as possible and then being sent to sea immediately. The course consists of a five weeks indoctrination period, a twelve week course at the Corps School, followed by a five week period in the functions of a purser, and concludes with a month of practical training in a marine hospital. More than 1,200 have been graduated from the school since the first class in December 1942, and WSA officials estimate that one out of every four merchant ships has a medical representative aboard.

In the Hospital Corps School, seamen receive instruction in anatomy and physiology, nursing and preventive medicine, including the giving of inoculations, ship's hygiene and sanitation, clinical laboratory work, pharmacy, and advanced first aid. This course is followed by one month's practical experience and training in a marine or other approved hospital.

HOSPITALS NEEDING INTERNS
AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

(Continuation of list in THE JOURNAL, May 27, page 285)

CONNECTICUT

Waterbury Hospital, Waterbury. Capacity, 372; admissions, 8,144. Miss Aida E. Creer, R.N., Superintendent (2 interns, October 1).

MASSACHUSETTS

House of Mercy Hospital, Pittsfield. Capacity, 235; admissions, 4,446. Dr. R. J. Marcotte, Director (4 interns, July 1)

MINNESOTA

Bethesda Hospital, St. Paul. Capacity, 180; admissions, 6,081. Rev. L. B. Benson, Superintendent (interns).

NEBRASKA

Lincoln General Hospital, Lincoln. Capacity, 213; admissions, 4,574. Mr. Robert B. Witham, Administrator (4 interns).

NEW JERSEY

Newark Memorial Hospital, Newark. Capacity, 130; admissions, 2,663. Miss Anna C. M. Nelson, R.N., Superintendent (2 interns).

NEW YORK

Binghamton City Hospital, Binghamton. Capacity, 559; admissions, 10,475. Mr. Jerome F. Pack, Superintendent (4 interns, June; 8 interns, October).

Lincoln Hospital, New York City. Capacity, 469; admissions, 9,521. Dr. Randolph A. Wyman, Superintendent (assistant resident in pediatrics, temporary appointment, July 1 to Sept. 30, 1944).

OHIO

Aultman Hospital, Canton. Capacity, 180; admissions, 6,332. Mr. James W. Stephan, Director (interns, October 1).

Jewish Hospital, Cincinnati. Capacity, 300; admissions, 8,072. Mr. Van C. Adams, Superintendent (intern, October 1).

Miami Valley Hospital, Dayton. Capacity, 445; admissions, 12,494. Mr. O. K. Fike, Director (interns, July 1, 1945).

TENNESSEE

St. Thomas Hospital, Nashville. Capacity, 225; admissions, 7,051. Sister Lydia, R.N., Superintendent (2 interns, October 1).

VIRGINIA

Alexandria Hospital, Alexandria. Capacity, 130; admissions, 4,474. Mr. R. G. Whitton, Administrator (intern, resident).

WISCONSIN

Luther Hospital, Eau Claire. Capacity, 176; admissions, 4,377. Mr. N. E. Hanshus, Superintendent (intern).

ORGANIZATION SECTION

OFFICIAL NOTES

THE CHICAGO SESSION

Radio Broadcasts

The following radio broadcasts have been arranged in connection with the annual session of the American Medical Association to be held in Chicago June 12-16. Details and information not available for inclusion in this announcement will be found in the *Daily Bulletin* of the meeting and in the daily radio columns in local newspapers:

Saturday, June 10, 3:30-4 p. m.

Doctors at War, "Frontiers of Medicine." Speaker, Morris Fishbein.

Sunday, June 11, 12:45-1 p. m., Columbia Broadcasting System

"War and the Medical Profession." James E. Paullin, Atlanta, Ga., President of the American Medical Association.

Tuesday, June 13, 12:45-1 p. m., Blue Network.

"Psychiatric Study of Successful Soldiers." Capt. Jack G. Sheps, Royal Canadian Army Medical Corps, Toronto.

Tuesday, June 13, 4:45-5 p. m., WCFL

"Rheumatic Fever in the Army Air Forces." Col. W. Paul Hollbrook, M. C., A. U. S., Air Surgeon's Office.

Tuesday, June 13, 4:45-5:00 p. m., WCFL

"Convalescent Training Program in Army Air Forces Hospitals." Lieut. Col. Howard A. Rusk, M. C., A. U. S., Air Surgeon's Office.

Wednesday, June 14, 9:45-10 a. m., WJJD

"Psychiatric Selection of Men for the Armed Forces." Raymond W. Waggoner, Ann Arbor, Mich., and, if available, Col. William Menninger, M. C., A. U. S., interviewed by W. W. Bauer.

Friday, June 16, 6:30-6:45 p. m., N. B. C.

"Doctors and the Nation's Health." Herman L. Kretschmer, President of the American Medical Association, interviewed by W. W. Bauer.

Saturday, June 17

Doctors at War, "Mechanized Dandruff." Speaker, Brig. Gen. James S. Simmons, Chief, Preventive Medicine Service, War Department, Washington, D. C.

All time is Central War Time.

Conferences on Rheumatic Fever

A feature of the Scientific Exhibit will be informal daily clinical conferences on rheumatic fever sponsored by the Section on Pediatrics in cooperation with the rheumatic fever committees of the American Academy of Pediatrics and the American Heart Association. Special emphasis will be placed on the diagnosis and management of a case. Among the clinicians who have volunteered their services for these conferences are Drs. T. Duckett Jones, Boston; Alexander T. Martin, New York; Morse J. Shapiro, Minneapolis; Stanley Gibson, Chicago; May G. Wilson, New York; Leo M. Taran, Brooklyn; Bernard J. Walsh, Washington, D. C.; Oswald F. Hedley, Washington, D. C.; Robert R. Struthers, Montreal, and Robert L. Jackson, Iowa City. A room has been made available for informal discussion on the exhibit floor of the Palmer House adjacent to the rheumatic fever exhibit booth of the Metropolitan Life Insurance Company.

Rush Alumni Luncheon

There will be a luncheon of the Rush Alumni Association at 12:15 p. m. on Wednesday, June 14, in the Century Room of the LaSalle Hotel. Because of OPA regulations, tickets should be bought at the registration desk not later than Tuesday afternoon, June 13.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—S. 1100 has been reported to the Senate, a bill to provide for the promotion of officers on the retired list of the Army after specified years of service on active duty. Among other things, this bill provides that officers of the Medical Administrative Corps who have been or may be retired as such in the grade of second lieutenant or first lieutenant shall be promoted to the respective grades of first lieutenant and captain immediately upon completing, respectively, five years and ten years of service. S. 1808 has passed the Senate, authorizing the temporary appointment as officers in the Army of the United States of members of the Army Nurse Corps, female persons having the necessary qualifications for appointment in such corps, female dietetic or physical therapy personnel of the Medical Department of the Army (exclusive of students and apprentices), and female persons having the necessary qualifications for appointment in such department as female dietetic or physical therapy personnel. S. 1809 has passed the Senate, a bill to remove the limitation on the right to command of officers of the Dental Corps of the Army which limits such officers to command in that corps. S. 1944 has passed the Senate, authorizing an annual appropriation of \$500,000 to provide books either in raised characters, on sound-reproduction records, or in any other form for the use of adult blind residents of the United States. A companion bill, H. R. 4729, has been favorably reported to the House. H. J. Res. 241 has been reported to the House by the Committee on Foreign Affairs, requesting the President to approach the governments of all opium producing countries throughout the world, urging that they take immediate steps to limit and control the growth of the opium poppy and the production of its derivatives to the amount actually

required for strictly medicinal and scientific purposes. H. J. Res. 271 has been approved by the President, appropriating \$6,700,000 for emergency obstetric and pediatric care for the wives and infants of enlisted men for the remainder of the present fiscal year. H. R. 1506 has been approved by the Senate Committee on Military Affairs, after substituting the language of S. 1690, a bill introduced by Senator Johnson of Colorado to amend the Pay Readjustment Act of 1942 so as to permit the counting of services in the Medical Reserve Corps for pay purposes. The conferees have reached an agreement on H. R. 4278, a bill providing, among other things, for the carrying out of agricultural conservation and related agricultural programs. A Senate amendment to the bill provided that none of the money made available in the Department of Agriculture Appropriation Act, 1944, for loans, grants and rural rehabilitation may be used in the promotion or aid of any program of medical care which prevents the patient from having the services of any practitioner of his own choice so long as state laws are complied with. The conferees added to the foregoing Senate amendment an exception that the amendment would not be applicable to the promotion or aid of a program of medical care where a majority of the participants within the program group elect to confine their choice of practitioners to a list of available licensed practitioners selected by them. The action of the conferees in this particular matter has been approved by the House. H. R. 4881 has been reported to the House, a bill to bring isonipecaine within the purview of federal narcotic laws. H. R. 4899 has passed the House, a bill providing appropriations for the Department of Labor, Federal Security Agency and related independent agencies for the fiscal year 1945. Among other things, this bill provides an appropriation of \$42,800,000 for a continuation of the E. M. I. C. program of which not more than 2 per cent

may be allotted to the states for administrative expenses on the basis of need as determined by the Chief of the Children's Bureau. The bill proposes no change in the method by which the obstetric and pediatric services rendered to the wives and infants of servicemen are to be paid for.

Bills Introduced.—S. 1911, introduced by Senator Wagner of New York, for himself and Senator Wheeler, Montana, and H. R. 4805, introduced by Representative Crosser, Ohio, are companion bills proposing, among other things, to amend the Railroad Retirement Act and the Railroad Unemployment Insurance Act. These bills provide for cash sickness and maternity benefits for employees who are beneficiaries of the acts proposed to be amended. S. 1946, introduced by Senator George of Georgia for himself and Senator Thomas of Utah, Senator Hill of Alabama, Senator Jackson of Indiana, Senator Aiken of Vermont, Senator LaFollette of Wisconsin and Senator Ellender of Louisiana, a bill to provide vocational training and retraining programs for the occupational adjustment and readjustment of veterans returning from military service, workers demobilized from war production plants, for other youth and for adults, that individuals and the nation may attain economic stability and security, and to extend further the program of vocational education. H. R. 4909, introduced by Representative Randolph, West Virginia, provides for health programs for government employees.

STATE MEDICAL LEGISLATION

Louisiana

Bills Introduced.—S. 95 proposes to create an anatomic board to be composed of the dean, the head of the department of anatomy and one additional member of the department of anatomy of Tulane University School of Medicine, Louisiana State University School of Medicine and Loyola University School of Dentistry. This board is to be empowered to promulgate rules and regulations for the collection, storage and distribution of dead human bodies for anatomic purposes. S. 34 proposes to make it a misdemeanor for any person infected with syphilis who, possessing the means to secure treatment therefor, fails to submit to treatment by a licensed physician. It is likewise to be a misdemeanor for any person infected with syphilis to reject treatment thereof by a licensed physician when it is offered free of cost. H. 459 proposes to permit any resident of the state possessing a degree of Bachelor of Science from an accredited college to enter the Louisiana State University Medical School as a student. H. 460 proposes that any resident of the state who has graduated from the Louisiana State University Medical School or Tulane University Medical School shall be entitled to serve his or her internship at the New Orleans Charity Hospital. H. 461 proposes that native Louisiana physicians be given preference in the appointment of dean of the Louisiana State University Medical School.

WOMAN'S AUXILIARY

Arkansas

The Arkansas auxiliary is making a special effort to collect facts about the pioneer doctors of the state, and as an observance of Doctor's Day each auxiliary member has been asked to bring the typewritten history of one pioneer doctor. The pioneer period of Arkansas medical history ends in 1881, the date of the first register of physicians and surgeons in the state.

Indiana

Fifty members attended the dessert meeting of the Allen County Medical Auxiliary recently at the home of Mrs. Ernest R. Carlo. Mrs. George Turner reviewed "Burma Surgeon."

In order to stimulate interest and attendance, the Vanderburgh County auxiliary gives \$5 in war stamps as a contest prize at each meeting.

Louisiana

The Shreveport Medical Auxiliary paid special tribute to Doctor's Day with a fine exhibit on display in a prominent show window in the business section. This exhibit was quite successful from an educational standpoint, depicting "The Progress of Medical Science." Among the items of special interest displayed were the relics of prehistoric medicine, also books, pictures and instruments used throughout the intervening years. Mrs. J. M. Gorton of Shreveport was Doctor's Day chairman.

Minnesota

The Minnesota auxiliary has placed 182 *Hygia* subscriptions in institutions.

Kandiyohi-Swift-Meeker counties have reorganized as an auxiliary, and a new auxiliary was formed in Waseca County.

Mrs. Eben Carey, national president, was entertained at a tea in Minneapolis February 4, at which time she urged each doctor's wife to appoint herself a committee of one to carry the facts of the Murray-Wagner-Dingell bill to groups and clubs.

Ohio

The Ross County auxiliary met in January in Chillicothe. Mrs. Walter S. Barret gave a talk on "The Golden Age."

Oklahoma

A formal meeting of the Pittsburg auxiliary was held at the home of Mrs. L. S. Williams, the president. The tea was given in honor of the wives of the medical officers stationed at the prisoners of war camp and the naval ammunition depot. War work has been the chief concern of the auxiliary members—

knitting, surgical dressings and nurses' aide work. Mrs. Wilbour, chairman of the Pittsburg County tuberculosis seal sales, raised \$1,489 in the recent campaign.

Members of the Oklahoma County auxiliary have been working on surgical dressings for the University Hospital, also making students gowns and wrappers. They have purchased three \$100 bonds and three \$25 bonds.

South Carolina

The Spartanburg County auxiliary recently had a luncheon in the Cleveland Hotel with thirty-seven members present. Mrs. J. E. Orr, state president of the auxiliary, was the speaker. The wives of the Camp Croft physicians were guests.

Texas

The Falls County auxiliary conducted a Town Hall program at Marlin on the subject of socialized medicine recently. The meeting was well attended, and following it a number of Marlin residents wrote to their congressmen urging them to oppose the Wagner-Murray-Dingell bill.

Much war work is being done by the Texas auxiliaries. The El Paso County auxiliary made Red Cross dressings, the Kerr-Kendall-Gillespie-Bandera auxiliary purchased two \$25 war bonds, the Grayson County auxiliary is helping with the collection of blood plasma, and the Jefferson County auxiliary gave funds to the Beaumont and Port Arthur U. S. O. centers. The Kerr-Kendall-Gillespie-Bandera auxiliaries did much for the sale of tuberculosis seals, having sold \$1,200 worth.

Dr. Ruby K. Daniel gave an interesting travelogue before the Dallas County auxiliary recently, describing her experience in China with the Rockefeller Foundation.

Virginia

Dr. Morrison Hutcheson was the speaker at a recent meeting of the Richmond auxiliary. He discussed "Pending Medical Legislation." At a later meeting Dr. Hutcheson spoke on "Prediction of Fifty Years from Today."

The Northampton-Accomac auxiliary held its regular quarterly meeting recently at the home of Mrs. Rooker White of Keller.

West Virginia

Dr. Ray M. Bobbitt of Huntington was the speaker at a luncheon meeting of the Cabell County auxiliary held at the Frederick Hotel recently. He discussed the Wagner-Murray-Dingell bill. The auxiliary endorsed the proposed plan for a full time city-county health unit.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Penicillin Plant for Berkeley.—A \$600,000 plant for producing penicillin will be constructed adjoining the Cutter Laboratories in Berkeley, the result of a contract granted by the Defense Plant Corporation. Ground has been broken for the new building. It was stated that sixty scientists will be on the staff, once the plant is in operation.

Appointments to State Medical Board.—Dr. Anthony B. Diepenbrock, San Francisco, was recently appointed a member of the state board of medical examiners to succeed Dr. Alvin E. Cerf, San Francisco, whose term expired. Dr. Joe Zeiler, Los Angeles, was named a member of the board for a four year term, succeeding Dr. Hugo M. Kersten, Los Angeles.

Von Urban Acquitted of Practicing Medicine Without a License.—Rudolf von Urban, "adviser on sexual problems," was recently acquitted of charges that he had practiced medicine without a license, newspapers reported. Von Urban had been brought into court on a complaint of an investigator for the state board of medical examiners, the state contending that he had been trained as a physician in his native Vienna, had practiced medicine there for many years and therefore was acting as a doctor when he set out to advise Monterey County women. In his defense, von Urban is said to have defined "sexology" as the "science of occurrence in the soul which teaches people to understand sex instincts."

COLORADO

Rheumatic Fever Now Reportable.—At a meeting of the state board of health on April 4 rheumatic fever was made a reportable disease in Colorado. The action was taken because it is generally recognized that the disease is a serious public health problem, because of the increased interest in the disease among medical and lay groups throughout the country and because most reports indicate that Colorado morbidity and mortality rates from rheumatic fever are among the highest in the United States.

DISTRICT OF COLUMBIA

Latin American Physicians in This Country.—Dr. Catts Pressoir, professor of psychology in the Lycée Pétiot at Port-au-Prince, Haiti, is in Washington as the guest of the Department of State. Also a physician, Dr. Pressoir will make a tour of various medical centers throughout the country. Dr. José Zozaya, Mexico City, director of the Institute of Public Health and Tropical Diseases of Mexico, was also a guest of the Department of State and plans a tour of various places in the United States. Dr. Zozaya is engaged in organizing a central medical library for the National Academy of Medicine of Mexico. According to an announcement from the Department of State, Dr. Zozaya will extend invitations to physicians who wish to specialize in tropical medicine to pursue their investigations at the institute of tropical medicine, of which he is director. The institute consists of the central institute at Mexico City with a substation at Chiapas, one at Guerrero and one, now under construction, at Boca del Río in Vera Cruz. Dr. Pedro P. Nogueira Rivero, in charge of the Marianao Health Unit, Cuba, is a visitor in this country under the auspices of the U. S. Department of State.

FLORIDA

Dr. Paul Placed in Charge of Malaria Control.—Dr. John Harland Paul, for three years in charge of malaria control in Haiti, has been appointed director of the bureau of malaria control of the state board of health.

Conviction for Narcotic Violation.—On April 12 Dr. Emory A. Carter, De Land, was convicted in the U. S. District Court at Jacksonville of violation of title 18, section 72, of the U. S. Code "for the reason that he wrote narcotic prescriptions in the names of purported patients, presenting them himself for filling and obtaining the drugs to satisfy his own addiction." Dr. Carter was sentenced to imprisonment for a term of two years, according to the federal bureau of narcotics.

ILLINOIS

New Headquarters for Venereal Disease Center.—The Lake County Free Treatment Center for Venereal Disease, located in the Lake County General Hospital, Waukegan, was moved on May 25 to new quarters at 20 South Utica Street, Waukegan. The old location of the center was in the outlying area, whereas the new location is in the downtown district. The clinic is set up under health district number 2 of the state department of public health. It is supported by state and federal funds in quarters furnished by the Lake County Board of Supervisors. Dr. Donald B. Douglas and Dr. Kenneth C. Beck, both of Waukegan, are in charge.

Chicago

Two Rush Classes Have Reunion Luncheon.—The Rush Medical College classes '03 and '04 will celebrate a joint fortieth reunion at a luncheon to be given for them at the Presbyterian Hospital on Tuesday, June 13. Members of these two reunion classes will be the luncheon guests of the Rush Medical College and Presbyterian Hospital. The reason for the inclusion of two classes is that there was no A. M. A. meeting in 1943.

Cancer Forum.—The Chicago Cancer Committee sponsored a forum for the public on "Facts About Cancer" in the theater of the museum in Jackson Park, May 23. Dr. Eben J. Carey, dean of Marquette University School of Medicine, Milwaukee, and curator of medical science at the museum, was moderator at the forum and speakers included:

Dr. Ludvig Hektoen, chairman of the cancer committee and executive director, National Advisory Cancer Council.

Dr. Bowman C. Crowell, associate director, American College of Surgeons.

Dr. Josiah J. Moore, Treasurer of the American Medical Association.

Dr. Herbert E. Schmitz, professor and head of the department of obstetrics and gynecology, Loyola University School of Medicine.

Dr. Alexander Brunschwig, professor of surgery and roentgenology, University of Chicago School of Medicine.

Chicago Alumni Meeting—Publication of Year Book.—The Alumni Association of the University of Chicago School of Medicine will hold a meeting on June 14 at the Albert Merritt Billings Hospital. Dr. Charles H. Rammelkamp Jr., on the staff of station hospital number 2, Fort Bragg, North Carolina, who has been associated with Dr. Chester S. Keefer, Boston, will discuss "The Present Status of Penicillin." A reception will follow the meeting at Billings cafeteria. This is the first meeting in a number of years of the alumni association. Coincident with the announcement of the alumni meeting is one concerning the publication of a year book by the senior class of the University of Chicago School of Medicine. The first publication of its kind attempted by the medical school, the book will review the development of the school from the time of the opening of the Billings Hospital in 1927 up to the present period. A section will be devoted to each graduating class and will include class pictures, addresses and current information on other activities. Dr. John V. Prohaska is president of the alumni association, which now has a membership of about 525. The alumni group was officially organized in 1934.

Institute of Medicine Accepts Sponsorship of Service for Chronically Ill.—On May 1 the Institute of Medicine of Chicago accepted the sponsorship for the Central Service for the Chronically Ill, a group organized in 1943. Prior to this action the work of the service had been directed by an administrative committee which included as members Drs. George H. Coleman, James P. Simonds, Charles H. Phifer, Ludvig Hektoen and William F. Petersen, chairman. The service, which has offices at 343 South Dearborn Street, was originally organized:

To survey the facilities now available and determine the nature and extent of the need in the community

To cooperate with interested and responsible agencies of the community in planning and developing needed facilities, and to provide leadership and educational programs for the public to the end that properly planned projects may be encouraged and carried through to completion.

To provide a central informational service regarding facilities in the community for the care of the chronically ill for the purpose of assisting individuals to obtain care and of offering help to physicians in the selection of appropriate homes, institutions or other services for their patients, both indigent and self supporting.

It stemmed from the health division of the Council of Social Agencies and was financed by the Community Fund. Both of these groups, however, wanted the new service to be operated under the auspices of a medical agency.

Portrait of Howard Ricketts.—A portrait of the late Dr. Howard Taylor Ricketts, who died in Mexico City May 3, 1910 of typhus, will be unveiled in the Archibald Church Library at Northwestern University Medical School, June 11.

The portrait is the gift of Mrs. Howard T. Ricketts and will be presented by Dr. Henry T. Ricketts, son of the late physician. The unveiling will be done by Robert Howard Palmer and Howard James Ricketts, both of whom have been named in honor of their grandfather. Dr. Ludvig Hektoen, after an introduction by Dr. Irving S. Cutter, dean emeritus of Northwestern University Medical School, will deliver the principal address. Dr. Ricketts spent five years on the Evanston campus of Northwestern, three years in the academy and two in the college. After spending his junior and senior years at the University of Nebraska, Lincoln, he graduated there in 1894. He then returned to Northwestern medical school to graduate in 1897. The portrait, executed by Oskar Gross, Chicago, is a commemorative gift to mark the fiftieth year of graduation of the late physician and his wife. Their class at Northwestern is this year celebrating its fiftieth anniversary on the Evanston campus. The medical school is sponsoring the tea to mark the presentation of the portrait as an adjunct to the Evanston observance. The portrait will hang permanently in the Archibald Church Library. A special exhibit of memorabilia depicting the work of Dr. Ricketts, who contracted typhus while carrying on research on the disease, will be on display.

LOUISIANA

University News.—The board of supervisors has made a special appropriation of \$36,000 to expand the library of Louisiana State University School of Medicine, New Orleans. These funds will be used in purchasing sets of journals needed by the library.

One Hundred Years of Medicine.—With its May issue the *New Orleans Medical and Surgical Journal* celebrated its 100th anniversary. The issue contains much medical history and opens with a review by Dr. Rudolph Matas on "One Hundred Years of Medical Journalism in Louisiana." The journal has been published continuously since that time with the exception of a few periods. An editorial points out that during the hundred years of the existence of the journal the country has engaged in five major wars, the Mexican, the war between the states, the Spanish-American War and the two world wars. The journal contains a list of the editors from the time of the journal's inception. Dr. Albert E. Fossier, New Orleans, has contributed an article on "The Early History of the New Orleans Medical and Surgical Journal."

MARYLAND

Dr. Steiner Goes to Detroit.—Dr. Starling D. Steiner, Baltimore, has resigned as chief of the division of industrial hygiene of the state department of health to accept a position with the Cadillac division in the General Motor Corporation, Detroit.

MASSACHUSETTS

Changes in Health Personnel.—Dr. James O. Wails, director of the Nashoba Health Unit, Ayer, has been appointed health commissioner of Worcester. Dr. Harry G. Wyer, who was formerly a lieutenant colonel in the U. S. Army and is professor of military medicine at the Boston University School of Medicine, is now health officer of the south metropolitan district of the Massachusetts Department of Public Health.

Report of Psychiatry Clinic.—The Boston Psychoanalytic Institute has published the first annual report of the Psychiatry Clinic opened Oct. 5, 1942 at 82 Marlborough Street, Boston. Of 177 applications, 3 were referred twice during the year. Of the 174 persons, 69 did not follow up the referral or were referred elsewhere, 96 were accepted for consultation or treatment and 9 applications were pending at the end of the first year of operation, October 1943. Of the patients seen at the clinic, more than one third were discharged service men returned to the community from training camps or, more recently, from actual combat areas. About one third of the patients came either because of their reaction to rejection for service on psychiatric grounds or because the approaching induction had stirred up in them emotional problems which up to that time they had been more or less able to handle without outside help. About one sixth of the clinic patients were women who came because they were unable to cope with the enlistment of their sons, husbands, brothers or fiancés. The remaining patients were mostly employees of defense industries. One half of the referred patients belong to the group of so-called civilian war neuroses, for which the clinic was originally intended. The original purpose in creating the clinic was to offer a service to the community in the immediate crisis of the war and thereafter to create a center for research in methods for a short form of treatment (*THE JOURNAL*, Oct. 31, 1942, p. 707). The report indicates that

the first year's operation presages the success of the clinic. While the clinic was to be conducted on a nonprofit basis, patients were treated without charge in some cases. From those for whom a nominal charge was made, about \$500 was collected. It is expected that about \$400 more will be collected this year. The report mentions an anonymous gift of \$6,500 to assist in the maintenance of the clinic. It is interesting to note that the clinic was opened with only the contributions made available by members of the staff. Any one wishing to contribute toward the work of the psychoanalytic clinic should send donations to Dr. Leolia A. Dalrymple, Boston, treasurer. When the patient's condition was found not due to the war or otherwise unsuitable for short treatment, a referral was made to some other community service. Among these conditions were mental diseases which might require hospitalization, mental symptoms due principally to disease or injury of the nervous system and chronic alcoholism.

MICHIGAN

Personal.—Dr. Welsey H. Mast, Petoskey, was named a member of the state council of health to succeed Dr. Oscar D. Stryker, Fremont, his term to end June 30, 1949.—Dr. James A. Olson, Flint, public school medical adviser and director of the Charles Stewart Mott Foundation health center, has resigned, effective April 1, to take a three year fellowship appointment to study ophthalmology at Henry Ford Hospital, Detroit.—Dr. Edwin J. Rennell has resigned as medical superintendent of the Pontiac State Hospital, effective April 15, to become superintendent of the Coldwater State Home and Training School. Dr. Harry C. Dunstone, assistant superintendent of Ypsilanti State Hospital, has been named to succeed Dr. Rennell at Pontiac.

New Diarrhea and Enteritis Service Offered.—The Michigan Department of Health, with the cooperation of the W. K. Kellogg Foundation, now has available a diarrhea and enteritis study group to give assistance to hospitals experiencing active outbreaks of nursery diarrhea. The study group, which has been in training for a year, is in charge of a licensed physician and is made up of two sections, one working in the field and the other in the laboratory. The field section consists of a physician, two graduate nurses and a medical secretary. The laboratory section is composed of two bacteriologists, one virologist, five laboratory assistants and one secretary. Field operations will be limited to Michigan, northern Ohio and northern Indiana. Any hospital experiencing an active outbreak of nursery diarrhea may request the services of the group. The cost of the field operations will be borne by the W. K. Kellogg Foundation and the state department of health.

MINNESOTA

Dr. Hewitt Honored.—On May 31 Dr. Richard M. Hewitt, Rochester, head of the division of publications of the Mayo Clinic, was presented with an honorary achievement award by George Washington University School of Medicine, Washington, D. C., "for achievements in medical journalism." Dr. Hewitt graduated at George Washington twenty years ago. He went to the Mayo Clinic in 1928, after having served since 1925 as assistant editor of *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*.

Physician Surrenders License on Abortion Charge.—On March 8 Dr. Orel A. Kibbe, Minneapolis, pleaded guilty in the district court of Hennepin County on the charge of performing an illegal operation and surrendered, in open court, his medical license and basic science certificate with a written request that they be canceled by the Minnesota State Board of Medical Examiners and the Minnesota State Board of Examiners in the Basic Sciences, respectively. His sentence, not to exceed four years in a state penal institution, was suspended on condition that the physician refrain from practicing medicine in any manner. On February 28 Dr. Kibbe was arrested after investigation had disclosed that he had performed a number of abortions for fees ranging from \$10 to \$35 each. On March 1 he entered a plea of not guilty and was released on cash bail in the sum of \$2,000. He later changed his plea to one of guilty.

MISSOURI

State Medical Election.—Dr. Arthur S. Bristow, Princeton, was chosen president-elect of the Missouri State Medical Association at its annual meeting in Kansas City. Dr. Robert Mueller, St. Louis, is acting president during the absence of Lieut. Col. Curtis H. Lohr, M. C., president. Drs. Francis T. H'Doubler, Springfield, and Walter L. Brandon, Poplar Bluff, are vice presidents; Dr. Charles E. Hyndman, St. Louis, is treasurer. Dr. Ralph L. Thompson, St. Louis, is secretary-editor. A feature of the meeting was the unveiling of a portrait

of the late Dr. Andrew W. McAlester. The unveiling was done by his granddaughter following a tribute by his son Dr. Andrew W. McAlester Jr., Kansas City, the outgoing president of the association.

OHIO

Fifty Years in Medicine.—The Columbus Academy of Medicine recently held a dinner to honor twenty-six physicians who have practiced medicine in Columbus for fifty years or more. Dr. Morris Fishbein, Editor of *THE JOURNAL*, was the principal speaker. Included among the guests of honor were Drs. John A. Bauer, Joseph E. Beery, John Edwin Brown, Arlo Solomon Canright, William H. Cleveland, Dana W. Collison, Myrwood T. Dixon, Edson J. Emerick, Enoch N. Heston, Emma Olavi Jones, Charles F. Junkermann, Florus F. Lawrence, Lee H. Mann, Joseph A. Murphy, James A. Park, Herbert M. Platter, Clarence C. Ross, Charles J. Shephard, Lawrence M. Sifrit, Gustavus A. Sulzer, Sterling B. Taylor, Andrew J. Timbermann, Luther B. Turner, John H. J. Upham, Howard Whitehead and Simon B. Winters.

Report of Cleveland Health Museum.—Dr. Howard Lester Taylor was reelected president of the board of trustees of the Cleveland Health Museum at its recent annual meeting. In a report to the board Dr. Bruno Gebhard, director, stated that because of the rapidly increasing attendance the museum will in the future be open seven days a week. In 1943 the museum was open 332 days with a total attendance of 28,998, of which about one third was in 520 groups, including 56 classes for expectant mothers and fathers under the sponsorship of the local child health association. Groups and classes from 69 schools and colleges utilized the museum. Visual aid material was lent to 36 schools and 31 organizations in greater Cleveland, and exhibit material was lent to 29 organizations outside of Cleveland. It was also stated that the museum had begun work on an industrial health program for greater Cleveland plants, which is now well under way.

TEXAS

Library Building Fund.—The Houston Academy of Medicine has begun the collection of a fund to construct a building to house its medical library. Members of the academy will be solicited first before public contributions are sought.

Dr. Grollman Named Professor at Southwestern Medical College.—Dr. Arthur Grollman, research professor of medicine and associate professor of physiology and pharmacology, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N. C., has been appointed professor in the department of experimental medicine at the Southwestern Medical College of the Southwestern Medical Foundation, Dallas. *THE JOURNAL*, May 27, page 297, erroneously reported that Dr. Grollman was being appointed assistant professor at the college. The appointment will be effective July 1.

WISCONSIN

Personal.—Dr. Ralph B. Quinn was elected mayor of Darlington recently. Dr. Maurice Rosenzweig, formerly assistant superintendent of Beth Israel Hospital, Boston, is the new superintendent of Mount Sinai Hospital, Milwaukee.

Physician's Memory Honored.—A group of friends have donated a fund to Mount Sinai Hospital, Milwaukee, in memory of the late Dr. Clarence A. Baer, the hospital's first dermatologist. A glass case, displaying Dr. Baer's picture and medals awarded him in the last war, has been hung in the hospital's dermatology room, which bears his name.

Professor Bock Retires at Marquette.—Joseph C. Bock, Ph.D., professor and head of the department of physiologic chemistry, Marquette University School of Medicine, Milwaukee, will retire on July 31 with the title professor emeritus. He will be succeeded by Dr. Armand J. Quick, associate professor of pharmacology at the medical school since 1937. Dr. Bock received his doctor of philosophy degree at Cornell University in 1917. He has been a member of the Marquette faculty since 1918. Dr. Quick, who graduated at Cornell University Medical College, New York, in 1928, has been a member of the Marquette medical school since 1935.

Hearing Rehabilitation Clinic.—On April 5 the Milwaukee Hearing Rehabilitation Clinic opened at the dispensary of the Marquette University School of Medicine under the sponsorship and cooperation of six interested medical and special groups. Recommended by the American Academy of Ophthalmology and Otolaryngology, the clinic has been made possible through the cooperation of the Medical Society of Milwaukee County, the Milwaukee Oto-Ophthalmic Society, the Marquette University School of Medicine, the Milwaukee Society of the Hard of Hearing and the rehabilitation divi-

sion of the Wisconsin State Board of Vocational Training. Working quarters for the clinic are supplied by Marquette University. The clinic aims to assist hard of hearing persons with medical or rehabilitation problems. After diagnosis the clinic will direct the patient to proper medical or surgical treatment or to rehabilitation through lip reading and hearing aids according to the requirements of the case. According to the *Milwaukee Medical Times*, the clinic will not interfere in any way with the private practice of medicine. It will restrict its activities to examination and evaluation of the hearing problem involved but will not treat any person examined by it or referred to it. If desired, results of the diagnosis will be referred to the patient's physician. A small fee will be charged to those able to pay. For the time being the clinic will be open one afternoon a week.

GENERAL

Honorarium to Dr. Fleming.—Arthur Cremin, New York, recently sent a \$1,000 check to *Time* to be forwarded to Dr. Alexander Fleming for his work on penicillin. Mr. Cremin, in the belief that doctors get nothing but praise for their contributions to humanity, wanted to give the \$1,000 to Dr. Fleming "to show that the great painkillers of humanity have a few friends with hearts that beat for them."

New Medical Director of Woodmen of the World Hospital.—Dr. Harry P. Thomas has been appointed superintendent of the Woodmen of the World War Memorial Hospital, San Antonio, Texas. He succeeds Dr. Augustus D. Cloyd Sr., medical director of the Woodmen of the World, who had been acting superintendent for five months. The action was approved at a meeting of the board of directors of the association in San Antonio recently.

Trudeau Medal Goes to Dr. James A. Miller.—The Trudeau Medal for meritorious achievement in the prevention and treatment of tuberculosis was awarded during the meeting of the National Tuberculosis Association in Chicago, May 10, to Dr. James Alexander Miller, professor of clinical medicine, Columbia University College of Physicians and Surgeons and director of the tuberculosis clinic, Bellevue Hospital, New York. Dr. Miller was president of the National Tuberculosis Association in 1923.

Pediatric Board Changes Examination Dates.—The American Board of Pediatrics announces that owing to the shortage of hotel space in New York the dates for the fall examinations there have been changed. The amended schedule reads that the written examination for all candidates planning to take the fall oral examinations will be held on Friday September 22. The oral examinations planned for St. Louis will be November 8-9 and New York City December 15-16. Dr. C. Anderson Aldrich, Rochester, Minn., secretary of the board, again announces that group I, which requires that an applicant shall have been specialized in pediatrics for ten years or more, will be abolished on July 1. All applicants, regardless of qualifications, must take both the written and the oral examination.

Educational Director Named for Baruch Committee on Physical Medicine.—Ernest J. Jaqua, LL.D., Eugene, Ore., former president of Scripps College, Claremont, Calif., has been appointed educational director of the Baruch Committee on Physical Medicine. Two committees have been set up, one a scientific advisory committee and the other the committee on war and postwar physical rehabilitation and reconditioning. Members of the scientific advisory committee are:

Dr. Frank H. Krusen, Rochester, Minn., chairman.
Dr. Jaqua, secretary.
Dr. John Stanley Coulter, Chicago.
Dr. John Farquhar Fulton, New Haven, Conn.
Dr. Charles Gordon Heyd, New York.
Dr. Andrew C. Ivy, Chicago.
Chauncey D. Leake, Ph.D., Galveston, Texas.
Dr. Frank R. Ober, Boston.
Dr. Winfred Overholser, Washington, D. C.
Francis O. Schmitt, Ph.D., Cambridge, Mass.
Dr. Ray Lyman Wilbur, Stanford University, Calif., member ex officio

Members of the committee on war and postwar physical rehabilitation and reconditioning include:

Dr. Krusen, chairman.
Dr. Jaqua, secretary.
Major Walter E. Barton, M. C.
Capt. Charles F. Behrens (MC).
Senior Surgeon Dean A. Clark, U. S. Public Health Service Reserve.
Dr. Charles M. Griffith, Washington.
Capt. Frederick A. Jostes (MC).
Capt. Howard H. Montgomery (MC).
Lieut. Col. Howard A. Ruck, M. C.
Mr. Harold V. Stirling, Washington.
Lieut. Col. Benjamin A. Strickland Jr., M. C.
Col. Augustus Thordike Jr., M. C.
Dr. William S. Tillett, New York.

Daniel N. Bulford * Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1900; in 1935 appointed member of the state sanitary water board; died March 20, aged 71, of coronary occlusion.

William Battle Buntin, Tucson, Ariz.; Memphis (Tenn.) Hospital Medical College, 1900; died March 12, aged 71, of pneumonia.

Rose V. La Monte Burcham, Alhambra, Calif.; Eclectic Medical Institute, Cincinnati, 1884; died February 2, aged 86, of cardiac occlusion and arteriosclerosis.

Thomas A. Burkhart, Jasonville, Ind.; Medical College of Indiana, Indianapolis, 1903; member of the board of health; died March 17, aged 71, of cerebral hemorrhage.

Thomas Armer Burneson, Lisbon, Ohio; Hahnemann Medical College and Hospital of Philadelphia, 1897; died March 24, aged 83, of pneumonia.

Mary Ryerson Butin, Madera, Calif.; Woman's Medical College, Chicago, 1881; for many years city and county health officer; served as president of the city board of health; died March 30, aged 87, of chronic myocarditis.

M. Robert Byrnes, Indianola, Neb.; Grand Rapids Medical College, 1907; died in an Omaha hospital March 3, aged 73.

Robert Elliston Carlton, Covington, Ky.; Kentucky School of Medicine, Louisville, 1877; organized the Latonia Anti-Tuberculosis Society in 1902; one of the founders of the First National Bank of Latonia in 1902, of the Model Building & Loan Association in 1905, and of the Bank of Dayton in 1905; died March 3, aged 87.

Albert Orton Carmack * Colome, S. D.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; died February 22, aged 70, of coronary occlusion.

Clarence Orrin Coburn * Manchester, N. H.; Tufts College Medical School, Boston, 1906; president of the New Hampshire Medical Society in 1939; president of the medical staff at the Elliot Hospital; a vice president of the Manchester Rotary Club and a trustee of the Currier Gallery of Arts; died in Candia March 30, aged 61, of coronary thrombosis.

Lewis Charles Coleman * Hazard, Ky.; University of Cincinnati College of Medicine, 1929; recently appointed health officer of Bell County; formerly health officer of Perry County; died in a Hazard hospital March 29, aged 40.

Robert Matthew Cox, Edmore, N. D.; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1905; died March 27, aged 68, of malignant lymphoma.

William de la Barre, Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1897; formerly on the staff of the Abbott Hospital; died in Edina March 26, aged 71, of terminal pneumonia and hypertension.

Neil J. Devers, Freeland, Pa.; Maryland Medical College, Baltimore, 1912; president of the board of health; formerly member of the school board; at one time deputy coroner of lower Luzerne County; one of the founders and member of the board of directors of the Freeland Building and Loan Association; died in the New York Hospital, New York, March 12, aged 59, of cirrhosis of the liver.

Stuart Lloyd DeWitt * Grand Haven, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1911; past president of the Ottawa County Medical Society; until recently a member of the Selective Service Board number 2 of Ottawa County; member of the board of education, chamber of commerce and the Rotary Club; formerly acting assistant surgeon, U. S. Public Health Service; chief of surgery, Municipal Hospital, where he died March 29, aged 55, of coronary occlusion.

Henry J. Dionysius, Kirkwood, Mo.; Homeopathic Medical College of Missouri, St. Louis, 1880; died March 20, aged 85, of heart disease.

Francis James Dore * Newton, Mass.; Harvard Medical School, Boston, 1902; an Associate Fellow of the American Medical Association; ordained a priest in 1916; for nineteen years head of the biology department at Boston College; regent of the school of pharmacy, Fordham University, New York, from 1918 to 1922; died in St. Elizabeth's Hospital, Boston, February 28, aged 65, of injuries received in an automobile accident.

Richard Benson Dugdale, South Bend, Ind.; Rush Medical College, Chicago, 1892; member of the Indiana State Medical Association; past president and secretary-treasurer of the St. Joseph County Medical Society; for many years mem-

ber and president of the board of education; served as county coroner; formerly on the staff of Epworth Hospital; died February 15, aged 75, of cerebral emboli and arteriosclerosis.

Rudolph T. Ehrhardt, St. Louis; St. Louis Medical College, 1886; at one time physician for the Chicago, Burlington and Quincy Railroad; died in the Barnes Hospital March 24, aged 79, of cerebral thrombosis.

John Philip Emich * Philadelphia; Temple University School of Medicine, Philadelphia, 1910; associate professor of surgery at his alma mater; served as president and secretary of the Babcock Surgical Society; on the staff of the Temple University Hospital; died March 21, aged 63, of coronary thrombosis.

Paul J. Faust, Chicago; University of Colorado School of Medicine, Denver, 1929; served as resident psychiatrist on the staffs of the Gardner State Hospital, Gardner, Mass., Logansport State Hospital, Logansport, Ind., Peoria State Hospital, Peoria, Ill., and the Chicago State Hospital, where he died March 13, aged 41.

John Salvatore Fiorella, Buffalo; Creighton University School of Medicine, Omaha, 1936; attending physician at the Lafayette General Hospital, where he died March 19, aged 34, of coronary thrombosis, hypertension and chronic nephritis.

Isadore Flatto, New York; Columbia University College of Physicians and Surgeons, New York, 1904; died March 15, aged 64.

William Howard Force, Ludington, Mich.; Detroit College of Medicine, 1908; member of the Michigan State Medical Society; served as a captain in the medical corps of the U. S. Army during World War I; for nine years health officer of Ludington; on the staff of the Paulina Stearns Hospital; died March 28, aged 74, of angina pectoris.

Jesse Bernard Francis, Troy, Ohio; the Hahnemann Medical College and Hospital, Chicago, 1908; served during World War I; died in Asheville, N. C., March 21, aged 61, of cardiorenal disease.

Louis Julian Genella, Kenner, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1898; member of the Louisiana State Medical Society; veteran of the Spanish-American War and World War I; died in New Orleans February 27, aged 69.

Frank Theophile Gouaux Sr. * Lockport, La.; Medico-Chirurgical College of Philadelphia, 1906; past president of the Louisiana State Medical Society and councilor of the Third District; on the visiting staff of Hotel Dieu, New Orleans, where he died March 19, aged 61, of carcinoma of the lower bowel.

Charles Hamil, Greenview, Ill.; Rush Medical College, Chicago, 1884; a member of the "Fifty Year Club" of the Illinois State Medical Society; died March 6, aged 90, of senility.

Weller H. Hoff, Paris, Ill.; Medical College of Ohio, Cincinnati, 1896; formerly mayor of Paris; at one time president of the Illinois Municipal League; served as president of the Aesculapian Society of Wabash Valley; died March 16, aged 74, of a self-inflicted bullet wound.

Harriet Ann Hook, Detroit; Rush Medical College, Chicago, 1905; died in the Dorothy Roger's General Hospital March 9, aged 67, of cardiac failure, following chronic myocarditis.

Peter David Hottenstein, Philadelphia; Medico-Chirurgical College of Philadelphia, 1903; on the staff of the Belmont Hospital; died at his home in Brookthorpe Hills, Pa., March 4, aged 69, of coronary thrombosis.

Margaret Emily Pagelsen Howard, Reading, Mass.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1882; member of the Massachusetts Medical Society; served as resident physician at the New England Hospital for Women and Children, Boston, and president of the board of directors; formerly trustee of the Boston State Hospital; died in Boston March 1, aged 84.

Edward Victor Hug, Lorain, Ohio; Jefferson Medical College of Philadelphia, 1893; past president and secretary of the Lorain County Medical Society; organizer of the Lorain County Society for Prevention and Treatment of Tuberculosis; served as a member of the board of health and for many years as health officer; on the staff of St. Joseph's Hospital; died April 15, aged 74, of myocardial degeneration.

Frederic A. Jackson * El Dorado, Wis.; Milwaukee Medical College, 1905; died March 21, aged 72, of myocarditis.

Zebulon Vance Johnston * Calhoun, Ga.; Atlanta College of Physicians and Surgeons, 1910; an organizer and first

commanding officer of the medical detachment of the Florida National Guard; served in France during World War I; past president of the Seventh District Medical Society; first president of the Calhoun Rotary Club; recently appointed a member of the staff of Governor Ellis Arnall; medical superintendent of the Johnston-Hall Hospital, where he died March 13, aged 59.

Robert John Judkins, Bainbridge, Ohio; Ohio-Miami Medical College of the University of Cincinnati, 1912; died March 19, aged 57, of coronary thrombosis.

Louis Karmiohl @ New York; University and Bellevue Hospital Medical College, New York, 1903; had been a member of the city board of health; served during World War I; died February 22, aged 63, of cerebral thrombosis.

Alexander Eli Kaufman, Chicago; Université de Lausanne Faculté de Médecine, Switzerland, 1939; Chicago Medical School, 1932; member of the Illinois State Medical Society; died March 9, aged 45, of hypertensive heart disease and chronic myocarditis.

Isaac W. Keenan, Fort Myers, Fla.; Jefferson Medical College of Philadelphia, 1895; at one time owner of the Keenan Hospital in Cambridge, Ohio; died March 15, aged 75.

Guy William Kennicott, Chehalis, Wash.; Rush Medical College, Chicago, 1885; member of the Washington State Medical Association; health officer of Chehalis; formerly surgeon and owner of the Chehalis General Hospital; died in Centralia, March 13, aged 85, of heart disease.

Charles W. Kibbe, Abbeville, La.; University of the South Medical Department, Sewanee, Tenn., 1901; died March 3, aged 68, of coronary thrombosis.

George Fred Klugh Jr. @ Atlanta, Ga.; Emory University School of Medicine, Atlanta, 1932; served as a first lieutenant in the medical reserve corps of the U. S. Army from Dec. 20, 1940 to June 18, 1941, when he retired; on the staffs of the Crawford W. Long Memorial Hospital, Georgia Baptist Hospital and the Good Samaritan Clinic; died in Brunswick, March 15, aged 37.

Warren Daniel Kunkel, Allentown, Pa.; Medico-Chirurgical College of Philadelphia, 1901; died in the Allentown Hospital March 10, aged 64, of myocarditis and cerebral hemorrhage.

William Godfrey LeFurgy @ Larchmont, N. Y.; Boston University School of Medicine, 1924; diplomate of the National Board of Medical Examiners; served as police surgeon in Mamaroneck; on the staff of the New Rochelle Hospital, New Rochelle; died March 29, aged 44, of cerebral hemorrhage.

Henry Havelock McCrea, Matamoras, Pa.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1899; member of the Medical Society of the State of New York; died at West Palm Beach, Fla., March 10, aged 67, of coronary thrombosis.

Angus C. McDonald, Warsaw, Ind.; University of Pennsylvania Department of Medicine, Philadelphia, 1892; member and past president of the Indiana State Medical Association; fellow of the American College of Surgeons; past president of the Kosciusko County and the Thirteenth District medical societies; served as a member of the state board of health; on the staff of the McDonald Hospital, which was named for him; a director of the Indiana State Bank and Trust Company; died April 23, aged 79, of carcinoma of the stomach.

Louis Edward Mannix, Chicopee Falls, Mass.; Tufts College Medical School, Boston, 1908; member of the Massachu-

setts Medical Society; served during World War I; chairman of the Chicopee chapter of the American Red Cross; served on the staffs of the Providence Hospital, Holyoke, and the Mercy Hospital, Springfield, where he died March 11, aged 59, of coronary thrombosis.

James Howard Mason, Plainfield, Iowa; Drake University College of Medicine, Des Moines, 1904; member of the Iowa State Medical Society; died February 23, aged 70, of heart disease.

Charles S. Meradith, San Gabriel, Calif.; University Medical College of Kansas City, Mo., 1891; died in Baldwin Park March 5, aged 90, of senility.

Arthur Claude Munns, Detroit; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1905; served on the staffs of the Providence Hospital and the Grace Hospital, Northwestern Branch, where he died February 21, aged 71, of pneumonia.

Parry Ward O'Donnell, Allentown, Pa.; Georgetown University School of Medicine, Washington, D. C., 1928; captain, medical corps, Army of the United States, not on active duty; found dead April 7, aged 40, of carbon monoxide poisoning.

James Edward O'Toole, Scranton, Pa.; Medico-Chirurgical College of Philadelphia, 1910; member of the Medical Society of the State of Pennsylvania; served during World War I; died February 21, aged 60.

Florence Harvey Richards, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1899; member of the Medical Society of the State of Pennsylvania; formerly on the staffs of the Philadelphia Polyclinic and the Woman's Hospital; served as head of the department of hygiene and medical director of the William Penn High School; died February 13, aged 66.

William Spurrier Sandbaeh, Pembroke, Ky.; Hospital College of Medicine, Louisville, 1907; member of the Kentucky State Medical Association; past

president and secretary of the Christian County Medical Society; chairman of the school board of Pembroke and the Christian County Board of Health; served on the staff of the Jennie Stuart Memorial Hospital, Hopkinsville; died March 21, aged 64, of heart disease.

KILLED IN ACTION

Norman Byron Geyer, Chicago; University of Illinois College of Medicine, Chicago, 1941; completed an internship at the Michael Reese Hospital; commissioned a lieutenant (jg) in the medical corps, U. S. Naval Reserve, on Aug. 27, 1941 and later promoted to lieutenant; killed in action in the Pacific area; aged 29; the presumptive date of death by the Navy Department is Nov. 16, 1943.

Alfred Richard Schroeder, Lakewood, N. J.; Georgetown University School of Medicine, Washington, D. C., 1938; diplomate of the National Board of Medical Examiners; fellow in surgery and formerly instructor in pathology at his alma mater; on the staff of the Georgetown University Hospital, Washington, D. C.; commissioned a first lieutenant in the medical reserve corps of the U. S. Army on June 13, 1938 and later promoted to captain; killed in action at Anzio February 7, aged 31.



LIEUT. NORMAN B. GEYER (MC),
U.S.N.R., 1914-1943



CAPT. ALFRED R. SCHROEDER, M. R. C.,
U. S. Army, 1912-1944

Correspondence

VISUAL TESTS FOR MALINGERING

To the Editor:—In a communication in *THE JOURNAL*, March 11, Dr. Rodney R. Beard questions my conclusions as set forth in *THE JOURNAL*, January 29. It appears that Dr. Beard, like others, falls into the error of regarding the visual angle of 5 minutes of arc as a fixed and constant factor in any test of acuity of vision and as having no relation with or dependence on a specific examining distance. A premise as faulty as this can hardly lead to anything but confusion.

It is stated that many can see letters subtending 5 minutes from a distance of 5 feet (visual acuity 5/5) yet cannot read type subtending 20 minutes from a distance of 20 feet (visual acuity less than 20/80). In this Dr. Beard plainly errs. The expression visual acuity 5/5 is in this connection clearly an anomaly and does not conform in any respect to a Snellen notation. According to Snellen, the acuteness of vision is expressed by a fraction the numerator of which represents the number of feet between patient and chart and the denominator indicating the distance in number of feet at which the smallest letters are read by the normal eye. In other words, the Snellen visual formula expresses a true ratio, i. e. a relation of one quantity to another of the same kind, while simultaneously connoting one or more aliquot parts of a unit—in short, it is a fraction and so cannot refer, as in the instance cited, to a comparison or relation of a distance in number of feet and a visual angle in minutes of arc, or vice versa.

Dr. Beard's expression of visual acuity 5/5 should really have read visual acuity 5/20, since what is normally seen at a distance of 20 feet is here seen at the distance of 5 feet, and the visual angle of 5 minutes of arc so designed for the normal eye from a distance of 20 feet is then a visual angle of 20 minutes of arc at the distance of 5 feet. Similarly, when test type normally distinguishable under a 5 minute angle at a distance of 80 feet is just recognizable at the distance of 20 feet, the acuteness of vision is accordingly denoted 20/80, and the subtending visual angle for the latter at this distance is in like manner 20 minutes of arc. Hence, inexorably it will follow that 5/20 (20 minutes of arc) is comparable to and the equivalent of 20/80 (20 minutes of arc).

Now it is obvious that in determining different degrees of visual acuity one of two things must occur: either the distance of the test chart or the subtending angle must change, and in either event the size of the test object will vary depending on how far the chart is removed from the eye or the visual angle increased or decreased, as the case may be.

That the Snellen notation satisfies the requirements of a true fraction has already been established, and that moreover this does not represent the fraction of vision existing but does afford the sine qua non for so measuring the value of vision is also on record. Briefly, given a Snellen notation or its subtending angle, viz. the linear dimension, and the dimension sought for squared, the resulting value will in the Snellen sense be that of the corresponding surface area of a square. Therefore the value of vision is actually measured not by the linear unit (fractional notation, or visual angle) but by the corresponding unit of surface area, that is the surface area of a square (*Arch. Ophth.* 55:58 [Jan.] 1926).

Finally, it may not be questioned that, as defined, Snellen notations are comparable values, and under the proper conditions transposable, and that the use of a correct formula for any such conversion is in fact a sound and valid procedure (*ibid.* 30:138 [July], 377 [Sept.] 1943).

J. A. C. GABRIELS, M.D., Albany, N. Y.

[The letter was referred to Dr. Beard, who replies:]

To the Editor:—Dr. Gabriels moves too fast in arriving at his conclusion in paragraph 2 that "Dr. Beard plainly errs." The statement which he criticizes was intended to say just what is there, and neither more nor less.

The point under discussion is whether or not the so-called naval or "approach" method of recording vision deserves wider application as a quick and reliable test for malingering. My position is that it does not, because the person with myopia has sharp vision for objects closer than his far point but at greater distances sees a blurred image. Thus, the myopic eye which can be corrected by a $\frac{1}{2}$ diopter concave lens, and the far point of which is at 2 meters, can form as sharp an image of objects within this 2 meter distance as any other eye but beyond that distance forms a blurred image.

In the long run, of course, practical observation must be the basis for decision as to the value of Dr. Gabriels' suggestion. My interest in this matter was aroused, prior to Dr. Gabriels' communication, by repeated observations that the simple multiplication (by appropriate factors) of the Snellen notation for acuity often failed to give figures which checked with those found by tests at varying distances under circumstances where malingering was unlikely. While the method suggested is not without value if it is applied by one with thorough understanding of the various optical and psychologic factors involved, I feel that, in the hands of most examiners, it would lead to false accusations of malingering for a considerable number of persons with mild myopia.

RODNEY R. BEARD, M.D., San Francisco.

"AN UNUSUAL MODE OF ACTION OF DIGITALIS IN AURICULAR FIBRILLATION"

To the Editor:—Dr. E. R. Movitt in an article in *THE JOURNAL*, April 29, page 1240, reports that during the course of administration of digitalis to patients with auricular fibrillation and a rapid heart rate "in 2 cases . . . not only did slowing of the ventricular rate occur, but also a reversal to sinus mechanism took place. On search of the literature a report with similar observations was found."

This implies that only one previous report of the changing of auricular fibrillation to sinus rhythm following the administration of digitalis has been published. However, in an article entitled "A Preliminary Investigation of the Therapeutic Value of Lanatoside C" in the *American Heart Journal* 21:133 (Feb.) 1941 George Fahr and I reported that 8 of 102 patients with nonparoxysmal auricular fibrillation of several months' duration developed normal sinus rhythm while taking lanatoside C. An incidence of 7.8 per cent suggests that this phenomenon is not so "unusual" as is generally supposed.

JOHN S. LA DUE, M.D., New Orleans.

SECTION ON MEDICAL HISTORY

To the Editor:—I have read Dr. Holcomb's communication in *THE JOURNAL*, April 29, with regard to the formation of a section on medical history in the Association. I agree wholeheartedly that the Association should interest itself in medical history both old and new. Santayana said "He who cannot remember history is condemned to repeat it." Such self-evident truth is often forgotten by busy men, but it should be the business of the American Medical Association to remember history as well as make it.

JOSEPH C. TRENT, M.D., Durham, N. C.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the Examining Boards in Specialties were published in THE JOURNAL, June 3, page 377.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Montgomery, Oct. 24-26. Sec., Dr. B. F. Austin, 519 Dexter Ave., Montgomery.

ALASKA: Juneau, September 5. Sec., Dr. W. M. Whitehead, Box 561, Juneau.

CALIFORNIA: San Francisco, June 27-29. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

CONNECTICUT: * Written. New Haven, July 11-12. Endorsement New Haven, July 25. Sec. to the Board, Dr. Creighton Barker, 258 Church St., New Haven. Homeopathic. Derby, July 11-12. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven.

DELAWARE: Dover, Oct. 10-12. Sec., Medical Council of Delaware, Dr. J. S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: * Washington, November. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6150 E. Municipal Bldg., Washington.

FLORIDA: * Jacksonville, June 26-27. Sec., Dr. W. M. Rowlett, Box 786, Tampa.

HAWAII: Honolulu, July 10-13. Sec., Dr. J. A. Morgan, 55 Young Bldg., Honolulu.

IDAHO: Boise, July 11. Dir., Bureau of Occupational Licenses, Mrs. Lela D. Painter, 355 State Capitol Bldg., Boise.

IOWA: * Iowa City, Sept. 25-27. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: November. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. Seventh St., Kansas City.

KENTUCKY: Louisville, Sept. 11-12. Sec., State Board of Health, Dr. Philip E. Blakerby, 620 S. Third St., Louisville.

LOUISIANA: September. Sec., Dr. R. B. Harrison, 1507 Ilibernia Bank Bldg., New Orleans.

MAINE: Augusta, July 5-6. Sec., Board of Registration of Medicine, 192 State St., Portland.

MARYLAND: Medical. Baltimore, June 13-16. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. Homeopathic. Baltimore, June 20-21. Sec., Dr. J. A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, July 11-14. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413-F State House, Boston.

MICHIGAN: * Ann Arbor, July 24-26. Final date for filing application is June 23. Sec., Board of Registration in Medicine, Dr. J. E. McIntyre, 100 W. Allegan St., Lansing.

MINNESOTA: * Minneapolis, June 20-22 and Aug. 29-31. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul.

MISSOURI: St. Louis, August. Sec., State Board of Health, Dr. James Stewart, State Capitol Bldg., Jefferson City.

NEBRASKA: * Omaha, Sept. 26-28. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Bldg., Lincoln.

NEW HAMPSHIRE: Concord, Sept. 14-15. Sec., Board of Registration in Medicine, Dr. D. G. Smith, 77 Main St., Nashua.

NEW JERSEY: Trenton, June 20-21. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW YORK: Albany, Buffalo, New York City and Syracuse, June 26-29. Sec., Dr. R. R. Hannou, Education Bldg., Albany.

NORTH CAROLINA: Raleigh, September. Sec., Dr. W. D. James, Hamlet.

NORTH DAKOTA: Grand Forks, July 5-8. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OHIO: Endorsement. Columbus, July 4. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: * Oklahoma City, Sept. 16. Sec., Dr. J. D. Osborn, Jr., Frederick.

OREGON: * Portland, July 26-27. Exec. Sec., Miss L. M. Conlee, 608 Failing Bldg., Portland.

PENNSYLVANIA: Harrisburg, July 11-15. Act. Sec., Bureau of Professional Licensing, Department of Public Instruction, Mrs. M. G. Steiner, 358 Education Bldg., Harrisburg.

SOUTH CAROLINA: Columbia, June 26-28. Sec., Dr. N. B. Heyward, 1329 Blandena St., Columbia.

TEXAS: Galveston, June 26-28. Sec., Dr. T. J. Crowe, 918-20 Texas Bank Bldg., Dallas.

VERMONT: Burlington, Sept. 12-14. Sec., Dr. F. J. Lawliss, Riehfors.

VIRGINIA: Richmond, Sept. 19-22. Sec., Dr. J. W. Prestou, 30½ Franklin Rd., Roanoke.

WISCONSIN: * Milwaukee, June 27-29. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

CONNECTICUT: June 10. Address State Board of Healing Arts, 250 Church St., New Haven 10.

DISTRICT OF COLUMBIA: Washington, October. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6150 E. Municipal Bldg., Washington.

IOWA: Des Moines, July 11. Dir., Division of Licensure and Registration. Mr. H. W. Grefe, Capitol Bldg., Des Moines.

NEW MEXICO: Santa Fe, June 12. Sec., Miss Marian M. Rhea, State Capitol Bldg., Santa Fe.

OKLAHOMA: Oklahoma City, July 3. Sec., Dr. J. D. Osborn Jr., Frederick.

OREGON: Corvallis, July 8. Final date for filing application is June 21. Sec., Board of Higher Education, Mr. C. D. Byrne, Eugene.

TENNESSEE: Nashville and Memphis, June 23-24. Sec., Dr. O. W. Hyman, Memphis.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Governmental Hospitals: Validity of Rule Restricting Right of Staff Members to Perform Major Surgery.—The city of St. Petersburg, Fla., owns and operates Mound Park Hospital, whose rules and regulations, promulgated by the city manager, limit the rights of members of the medical staff of the hospital to utilize hospital facilities. A member of the general medical staff is permitted full use of hospital facilities except for the performance of major surgery. Such a staff member is eligible for appointment on the junior surgical staff for a probationary period of at least two years and may then be appointed to the associate surgical staff, where he is required to perform twenty major operations under competent supervision. On successfully completing this requirement a physician is awarded membership on the major surgical staff and as such is entitled to unrestricted use of hospital facilities for major operations. Green, a resident physician and a taxpayer of the city, was a member of the general staff of the hospital and demanded of the city manager permission to use hospital facilities for the performance of major operations. When his demand was denied he filed a bill in equity to restrain the city from interfering with him in the use of hospital facilities. The trial court held against him, and he appealed by certiorari to the Supreme Court of Florida.

The question presented for our determination, said the Supreme Court, is whether Green, as a resident physician and a taxpayer of St. Petersburg, has a legal right to the unrestricted use of the facilities of the hospital in question. Under the common law it was not a function of government to own or administer hospitals. Sanction for their ownership must therefore be sought under some specific statute. Chapter 15505, Special Acts of 1931, authorizes the city of St. Petersburg to establish and maintain hospitals. The hospital in question was constructed according to this statutory authority and is being operated as one of the administrative departments of the city. The city manager is clothed with power to prescribe rules and regulations for its administration. The hospital is operated by the city in its corporate capacity and is on the list of hospitals approved by the American Medical Association and by the American College of Surgeons. To enjoy the privileges attendant on such approval, the hospital is required to and does maintain a specified staff organization and prescribed rules governing that staff, as previously referred to in this abstract. The reason for those rules is to establish and uphold high standards for the hospital, to insure that those entering the hospital for treatment secure skillful service and to protect the city and its taxpayers in the administration of the hospital. The rules are not designed to discriminate against any physician, but all physicians are required to conform to them as a prerequisite to the use of the hospital facilities.

A municipality, continued the court, may regulate and control the operation of a hospital provided by it and in the exercise of that power may exclude physicians not shown to have met its requirements. *Richardson v. City of Miami*, 144 Fla. 294, 193 So. 51. There is no question as to the power of a municipi-

pality to prescribe reasonable rules and regulations defining qualifications to practice the medical profession in a hospital provided by it. *Hayman v. City of Galveston*, 273 U. S. 414, 47 S. Ct. 363, 71 L. Ed. 714; *Harris v. Thomas*, Texas Civ. App., 217 S. W. 1068; *City of Miami v. Oates*, Fla., 10 So. (2d) 721. Green has the unrestricted use of the hospital here involved for all purposes except for the performance of major surgery, and he desires to acquire the right of performing major surgery in the hospital without complying with the rules of the hospital in that respect, notwithstanding the fact that every other physician who practices major surgery in the hospital has complied with these rules. He contends that he should be given a privilege not given to the members of the medical profession generally. According to his contention, as a resident taxpayer and practicing physician in the city he has a constitutional right to the unrestricted use of the facilities of the hospital. The practice of major surgery is a highly specialized field and is a delicate art. Admittedly it requires special skill and training, and the majority of physicians do not pretend to enter the field. It is an art that cannot be acquired by technical training alone but must come through actual practice and experience. Skill in materia medica in no sense connotes skill in major surgery. It is utterly futile to contend in our day that one be permitted to take a scalpel in hand and explore the cranium, the thorax or the abdomen and patch the viscera, remove a tumor or amputate a limb before he demonstrates his qualification to do so. Most assuredly when a municipality furnishes a hospital, operating room and other facilities for doing this and is responsible to patients for the negligent use of these facilities, it has a right to know that they are placed in the hands of an expert. If this is not true, the city and the taxpayer have no protection whatever. It would project the doctrine of freedom and equality into unwarranted areas to hold that one could practice major surgery with facilities furnished by the city when he has nothing more than a diploma from a medical school and a certificate from the state board of medical examiners to warrant his skill in that field.

The doctrine of freedom, continued the court, as employed in the democratic state has reference to man's free agency, to freedom of opportunity and equality before the law, to freedom to own property, to trade with whom he will, to go and come as he pleases, to worship God as his conscience dictates, to marry whom he or she can and to speak his mind, if he has one, on any question. There was nothing more fundamental in the Jeffersonian concept of democracy than this, that democratic institutions must keep pace with new truths and new discoveries and, as these advance, opinions must change and advance with them. To the end that these things be accomplished, said Jefferson, nature has wisely provided an aristocracy of virtue and talent to direct the interests of society. The first concern of a free society is the welfare of the individual, the intelligent administration of his social, political and cultural interests. Constitutional guaranties were not designed to intercept or stalemate progress in these factors; neither were they intended to hamper a community in raising the standard of its schools, hospitals and other institutions as high as reason and circumstances dictate. In this case the people of St. Petersburg have elected to own and support a hospital of approved high standards, and none of them are here complaining. Appellant says he should not be required to bring himself in rapport with the standards imposed by the community in which he proposes to practice. He does not intimate that the standards imposed are too high or out of line with those generally approved for the conduct of a first class hospital. If this thesis be sound, then there is no standard of excellence that the city can impose to protect itself against the assault made. Constitutional guaranties, individual diversities and the public welfare cannot always be reconciled; but, when they do clash, the public welfare is paramount and the right of free enterprise should be construed to preserve that. It may be that the means provided in this case to reveal the "aristocracy of virtue and talent" to do major surgery are crude, but it is not shown that they do not afford a measure of protection to the public and certainly they are ample to require that major surgery be done by the latest and best approved standards. No practitioner has a right to exploit the art under any other. When the city furnishes the facilities and takes the risk against their negligent use, it is not too much to require

that he who wields the knife does so in the philosophy of the twentieth rather than in that of the eighteenth century.

Green next contended that the city manager was without lawful authority to promulgate the rules and regulations in question and that the regulations should have been promulgated by the city council. It is sufficient in answer to this, said the court, to point out that the city charter authorizes the city council to conduct all the administrative departments of the city through the city manager, who is fully authorized to promulgate rules and regulations for the conduct of the hospital. The legislature was empowered to authorize this. Whether or not it was the best or wisest way is no concern of ours. Green then contended that the rules and regulations were unreasonable and arbitrary as applied to him and that they are subject to administration in such an arbitrary and unreasonable manner as to bar him from the use of the hospital in performing major surgery, should he qualify in other respects as such. This objection, said the court, is based on pure speculation as to the course pursued by those vested with the prerogative of administering the rules. The question has been prematurely raised. Unquestionably one should be given ample opportunity to qualify as "a major surgeon" under the rules of the hospital. If the rules are arbitrarily enforced in a way to bar instead of to qualify Green, he will then have reason to raise the question; but we refuse to indulge the presumption that he will not be treated fairly. He is well within his right to seek relief against unreasonable application of a rule but not against one that requires the same standard of excellence from him that it requires from all in his class. If he can demonstrate to the city manager that he is the skilled surgeon that he claims to be and has in all respects complied with the prerequisites imposed by the hospital, he should be given consideration for this; but the mere fact that he is a physician and a taxpayer in the city is insufficient to warrant relief that he seeks at this time.

Accordingly, the Supreme Court affirmed the judgment of the lower court, which in effect denied Green the relief he sought. —*Green v. City of St. Petersburg*, 17 So. (2d) 517 (Fla., 1911).

Society Proceedings

COMING MEETINGS

- American Medical Association, Chicago, June 12-16. Dr. Olin West, 535 N. Dearborn St., Chicago 10, Secretary.
- American Academy of Tuberculosis Physicians, Chicago, June 13. Dr. Oscar S. Levin, P. O. Box 7011, Denver, Colo., Secretary.
- American College of Allergists, Chicago, June 10-11. Dr. Fred W. Wittich, 401 LaSalle Medical Bldg., Minneapolis 2, Secretary.
- American College of Chest Physicians, Chicago, June 10-12. Dr. Paul H. Holinger, 500 N. Dearborn St., Chicago, Secretary.
- American Diabetes Association, Chicago, June 11. Dr. Cecil Striker, 630 Vine St., Cincinnati 2, Secretary.
- American Federation for Clinical Research, Chicago, June 12-13. Dr. Thomas M. Durant, 3401 N. Broad St., Philadelphia 40, Secretary.
- American Gastro-Enterological Association, Chicago, June 12-13. Dr. J. Arnold Bergen, 102 Second Ave. S.W., Rochester, Minn., Secretary.
- American Gynecological Society, Hershey, Penna., June 19-21. Dr. Howard C. Taylor Jr., 842 Park Ave., New York 21, Secretary.
- American Medical Women's Association, Chicago, June 10-11. Dr. Carroll L. Birch, 2045 Sedgwick St., Chicago, Secretary.
- American Physicians' Art Association, Chicago, June 12-16. Dr. F. H. Redewill, 536 Flood Bldg., San Francisco, Secretary.
- American Proctologic Society, Chicago, June 11-13. Dr. W. H. Daniel, 1930 Wilshire Blvd., Los Angeles 5, Secretary.
- American Society for Research in Psychosomatic Problems, Chicago, June 10-11. Dr. Edwin G. Zabriskie, 115 East 61st St., New York, Secretary.
- American Urological Association, St. Louis, June 19-22. Dr. Thomas D. Moore, 899 Madison Ave., Memphis, 3, Tenn., Secretary.
- Association for Research in Ophthalmology, Chicago, June 13. Dr. E. F. Payne, School of Aviation Medicine, Randolph Field, Texas, Secretary.
- Association for the Study of Internal Secretions, Chicago, June 12-13. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City, Secretary.
- Maine Medical Association, Rockland, June 25-27. Dr. Frederick P. Carter, 142 High Street, Portland 3, Secretary.
- Society for Investigative Dermatology, Chicago, June 13. Dr. S. W. Becker, 55 E. Washington St., Chicago, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1934 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

67:167-246 (March) 1944

Development and Growth of Human Embryo and Fetus: Graphic Representation of Some Aspects. H. W. Clatworthy Jr. and R. G. Anderson.—p. 167.

Psychogenic Fever in Infants. H. Bakwin.—p. 176.

Rheumatic Infections in Cincinnati Hospitals: Study of 3,475 Admissions from 1930 to 1940; Comparison with Incidence in Philadelphia Hospitals from 1930 to 1934. A. G. Wedum and Bernice G. Wedum.—p. 182.

*Vitamin A Absorption Test in Cases in Giardiasis. C. P. Katsampes, Augusta B. McCoord and W. A. Phillips.—p. 189.

Influenzal Meningitis. M. Birdsong, W. W. Waddell Jr. and Betty W. Whitehead.—p. 194.

*Similar Urogenital Anomalies in Identical Twins. J. K. Lattimer.—p. 199.

Arachnoidecty in 4 Siblings with Pneumoencephalographic Observations of 2. H. D. Pasachoff, M. J. Madonick and C. Drayer.—p. 201.

Mental Development of Congenitally Hypothyroid Children: Its Relationship to Physical Development and Adequacy of Treatment. Hilde Bruch and D. J. McCune.—p. 205.

Vitamin A Absorption in Giardiasis.—Katsampes and his associates employed the vitamin A absorption test to study the ability of the intestine to absorb fat in children in whom giardiasis had been diagnosed by the detection of the parasite in the stools or duodenal contents. In 3 of the 15 patients studied none of the symptoms commonly attributed to the parasitic infestation were present. The remaining 12 patients had symptoms fitting closely into the clinical picture of giardiasis. The tests indicated that the infection with *Giardia lamblia* in children seriously interfered with the absorption of vitamin A and in all probability with the absorption of other fat soluble vitamins as well. The authors conclude that this organism is pathogenic in children. After the parasites were eliminated by treatment with quinaerine hydrochloride, the health of the patients and the ability to absorb vitamin A were much improved. In control patients with celiac disease treatment with quinaerine hydrochloride did not influence the absorption of vitamin A.

Urogenital Anomalies in Twins.—Lattimer observed identical twins, aged 10, who had identical strictures of the urinary meatus. The same degree of dilatation of the bladder was present in each boy, with mild hydronephrosis and hypertension. After meatotomy the dilatation of the urinary tract decreased gradually, and the blood pressure fell to normal levels. These cases furnished an illustration of the fact that when a urogenital anomaly occurs in an identical twin one often sees the same anomaly reproduced in the other twin.

American Journal of Ophthalmology, Cincinnati

27:217-340 (March) 1944

Pigment Freckles of Iris (Benign Melanomas): Their Significance in Relation to Malignant Melanoma of Uvea. A. B. Reese.—p. 217.

Solar Keratoconjunctivitis Associated with Amblyopia: Report of 2 Cases. C. Berens and P. T. McAlpine.—p. 227.

Less Evident Causes of Lowered Acuity in Senility: Including Discussion of Case of Endothelial Dystrophy as Cause of Bullous Keratitis by F. H. Verheeff, R. I. Lloyd.—p. 232.

Cancer of Eyelid. L. Hollander and F. J. Krugh.—p. 244.

Regression of Inferior Oblique Muscle from External Rectus Approach. G. P. Guibor.—p. 254.

Transcлерal Lacrimal Canaliculus Transplants. G. G. Gibson.—p. 258.

Test Charts Representing a Variety of Visual Tasks. M. Luckiesh.—p. 270.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

51:267-406 (March) 1944

Demonstration of Pulmonary Lobes and Interlobar Fissures by Roentgenograms of Artificial Thorax. E. M. Medlar, G. S. Pesquera, W. H. Ordway and E. C. Lasher.—p. 267.

*Roentgenographic Manifestations of Atypical Pneumonia of Unknown Etiology. W. E. Cryslcr.—p. 280.

Plea for Prevention of Bronchiectasis. K. Kornblum.—p. 292.

Pulmonary and Osseous Manifestations of Tuberos Sclerosis, with Some Remarks on Their Pathogenesis. A. J. Ackermann.—p. 315.

New Cholecystographic Preparation. H. C. Ochsner.—p. 326.

Cholecystographic Studies with Priodax. M. Dannenberg.—p. 328.

Calcifications of Spleen. E. F. Gray.—p. 336.

*Congenital Absence of Patellae Associated with Arthrodysplasia of Elbows and Dystrophy of Nails: Hereditary Syndrome. H. R. Senturia and B. D. Senturia.—p. 352.

Osseous Abnormalities of Thoracic Cage Seen in Forty Thousand Consecutive Chest Photoroentgenograms. L. E. Etter.—p. 359.

*Rationale and Results of Roentgen Treatment of Adrenal Glands in Angina Pectoris. W. Raab and A. B. Soule Jr.—p. 364.

Roentgenographic Manifestations of Atypical Pneumonia.—Cryslcr reports 178 cases of bronchopneumonia occurring in the personnel of the Royal Canadian Navy, demonstrated by roentgenographic examination. The majority of the patients had admission and progress roentgenograms. Roentgen examination revealed parenchymal infiltration the extent of which did not coincide with the severity of the symptoms and was located predominantly in the lower lobes. Localization in one lobe was observed in the great majority of the cases. The appearance of the infiltration was either transparent and homogeneous, flocculent, or a combination of these, occasionally associated with hilus prominence. This classification coincides with Scadding's "benign circumscribed" and "disseminated focal" types. When located in an upper lung field the disseminated focal infiltrations resembled pulmonary tuberculosis of the confluent flocculent type. The use of the lateral projection has been of value. When one considers the volume of lung parenchyma located below the summit of the diaphragm and behind the heart which is not visible in the posteroanterior projection, the value of the lateral roentgenogram becomes apparent. Elevation of a hemidiaphragm in conjunction with a basal lesion has been encountered more frequently than in reports of others. While it is recognized that the finding may be due to a lack of elasticity incident to the coexistent inflammatory changes, a lobular or partial atelectasis seems more appropriate. In a certain number of cases plugging of bronchioles with resulting atelectasis takes place. Resolution is the rule, leaving no sign of the previous infiltration and occurring on the average within two weeks. Nonresolution with clinical evidence of asthma has also been observed.

Absence of Patellas with Arthrodysplasia of Elbows and Dystrophy of Nails.—The Senturias report the association of malformations of the nails, hypoplasia or complete absence of the patellas and deformities with impaired function of the elbows. They review the literature on this triad and describe their observations on a man aged 36 with this triad. The genealogical tree of the patient shows that a total of 30 persons were affected in four generations. The triad is an inherited congenital developmental defect involving the ectodermal and mesodermal layers of the embryo. It is transmitted as a hereditary dominant character and is not sex linked.

Roentgen Treatment of Adrenals in Angina Pectoris.—Raab and Soule present clinical and experimental evidence for Raab's theory that anginal attacks are brought about by the acutely anoxiating effects of epinephrine discharges on a heart muscle whose coronary arteries are sclerotic and thus unfit for adequate compensatory dilatation. The state of abnormal irritability of the adrenal secretory mechanism which was found to be a characteristic of angina patients could be abolished through roentgen irradiation of the adrenal region without ensuing damage to the basic normal function of the glands. This was demonstrated objectively by quantitative chemical hormone determinations in the blood before and after treatment and by the normalization of pathologic electrocardiograms. Of 42 typical angina patients treated in Burlington, Vt., with irradiation of the adrenal region, 74 per cent were either completely freed from their anginal complaints or at least improved for periods ranging between five and forty-five months, with an

average of two years up to the present. Nine of the 11 unimproved patients had not received three series of roentgen treatments and thus cannot be considered as definite failures. No untoward side effects were noted except short episodes of nausea in a few cases. Death occurred in 7 of the 42 patients treated during the past four and one-half years.

Annals of Otol., Rhin. and Laryngology, St. Louis

53:1-204 (March) 1944. Partial Index

- Otitis Externa. W. H. Johnston.—p. 5.
 *Relationship of Poliomyelitis and Tonsillectomy. R. E. Howard.—p. 15.
 Physiology of Drainage of Nasal Mucus: IV. Drainage of Accessory Sinuses in Man: Rationale of Irrigation of Infected Maxillary Sinuses. A. C. Hilding.—p. 35.
 Recurrent Swelling of Parotid and Submaxillary Glands Following Bronchoscopy. R. W. Blackford.—p. 54.
 Our Changing Conception of Acute Laryngotracheobronchitis. P. B. MacCready.—p. 65.
 Significance of Eosinophilia in Rhinology. D. Miller.—p. 74.
 Functional Anatomy of Skull: Anatomic Factors in Craniocerebral Injuries. S. L. Ruskin.—p. 81.
 Extranasal Block Anesthesia for Submucous Resection of Nasal Septum. G. B. Fred.—p. 127.
 Otolaryngologic Aspects of Bromide and Acetanilid Therapy. W. W. Eagle.—p. 133.
 General Anesthesia for Total Laryngectomy. G. F. Browne.—p. 140.
 Genetic Principles and Inheritance of Deaf-Mutism. J. M. Odiorne.—p. 153.
 Elimination of Intranasal Pack by Topical Use of Thrombin. H. N. Stevenson.—p. 159.

Relationship of Poliomyelitis and Tonsillectomy.—

Howard computes the incidence of poliomyelitis following tonsillectomy during the seven year period from 1937 to 1943, when 36,295 tonsil operations were performed in the hospitals of Cincinnati. About two thirds of these tonsil operations were performed on children of an age most susceptible to poliomyelitis. There were 257 cases of poliomyelitis in Cincinnati hospitals during the years reviewed. The cases occurred chiefly during the months from July to November. Only 6 of these cases of poliomyelitis developed following recent tonsillectomies. Three of these cases were of the spinal and 3 of the bulbar type, 1 of the latter being fatal. Investigations on the relationship of poliomyelitis to tonsillectomy and adenoidectomy should be based on the number of such operations performed during these months when the virus may be present either in the throat at the time of operation or afterward. The possibility of poliomyelitis during July, August, September and October in nonepidemic years following tonsillectomy and adenoidectomy is minimal, but when it does occur it is serious and most often bulbar in type. The ratio in the material reviewed by the author was 1 in 2,000 operations. The possibility of poliomyelitis following tonsillectomy and adenoidectomy in the other eight months is nil except in Texas and California, where the poliomyelitis season is extended from June to November and sometimes includes December. Operations on the nose and throat should be avoided whenever possible during months and years when there are epidemics of poliomyelitis.

Archives of Dermatology and Syphilology, Chicago

49:157-226 (March) 1944

- Xeroderma Pigmentosum: Report of Case and Consideration of Incomplete Sex Linkage in Inheritance of Disease. Madge Thurlow Macklin.—p. 157.
 Generalized Mercurial (Cinnabar) Reaction Following Tattooing. F. G. Novy Jr.—p. 172.
 Lessened Sensitivity to Tuberculin in Acne. F. W. Lynch.—p. 174.
 Neutralization as Therapeutic Principle in Contact Dermatitis. N. P. Anderson.—p. 176.
 *Contact Eczema Due to Nail Polish. W. L. Dobes and P. H. Nippert.—p. 183.
 Clinical Observations on Use of Soaps Containing an Abrasive. R. L. Kile and A. L. Welsh.—p. 188.
 Nevus Striatus Symmetricus Unguis: Report of Case with Involvement of Thumbs and Little Fingers. E. A. Oliver and S. M. Bluefarb.—p. 190.
 Dermatitis Due to Shoes. C. Shaw.—p. 191.
 American (Mucocutaneous) Leishmaniasis: Observations. O. G. Costa.—p. 194.

Contact Eczema Due to Nail Polish.—According to Dobes and Nippert nail polish is one of the most frequent causes of dermatitis of the eyelids in women. One or both upper eyelids are usually involved. Persons acquire the habit

of rubbing their eyelids with the backs of their hands and with their nails. The habits of resting the chin on flexed fingers, biting the nails and probing the nares and the ears with the finger tips result in patches of dermatitis in the areas where the nails touch the skin. The sides of the neck usually show a more diffuse dermatitis. Contact is made by readjusting the collar or dress. The eruption may appear on almost any part of the body where contact with nail lacquer is made. The authors report observations on 90 patients. The dermatitis produced by nail polish consists of a low grade erythema and scaling. Eight per cent of the patients showed vesiculation and weeping, especially when the chin and perioral areas were involved. Young high school girls who have a habit of biting their nails may present a picture which at first suggests a cheilitis from lipstick or toothpaste. The authors describe 7 typical cases, reproduce photographs of a number of lesions, review the literature and describe patch tests. The great majority of patients will give a positive reaction to patch tests. A few patients seem to have a localized hypersensitivity and do not react to the patches on the back or on the forearms. In testing such patients, one should apply the nail polish directly over the sensitized areas. Recurrence of the dermatitis when wearing of the nail polish is resumed is sufficient proof. Plasticizers, solvents and any other ingredients apparently can be the offending agents. The patient who insists on wearing nail polish should be tested with several brands of both colored and colorless polish. Most likely some brand and kind will be found that the patient will tolerate.

Archives of Surgery, Chicago

48:185-266 (March) 1944

- Vitamin B₁ Nutrition in Surgical Patients as Determined by Blood Level of Pyruvic Acid: I. Hepatic Disease. II. A. Davis and F. K. Bauer.—p. 185.
 Id.: II. Thyroid Disease. H. A. Davis and F. K. Bauer.—p. 190.
 Id.: III. Renal Disease, Neoplastic Disease and Infection. II. A. Davis and F. K. Bauer.—p. 193.
 Two Stage Operation for Carcinoma of Transverse Colon Producing Duodenocolic Fistula: Report of 2 Cases. R. R. Linton.—p. 197.
 Mediastinal Ganglioneuroma. H. K. Gray, D. V. Shepard and M. B. Dockerty.—p. 208.
 *Progressive Exophthalmos in Toxic Disease of Thyroid Gland: Review of Recent Literature, with Report of Case of Progressive Post-Thyroidectomy Proptosis in 6 Year Old Negro Girl. G. M. Haik.—p. 214.
 Lateral Aberrant Thyroid: Metastasis to Lymph Nodes from Primary Carcinoma of Thyroid Gland. R. C. Clay and S. S. Blackman Jr.—p. 223.

Progressive Exophthalmos.—Haik states that treatment of exophthalmos associated with hyperthyroidism, particularly of the variety which becomes progressive after thyroidectomy, has been unsatisfactory. Thyroidectomy frequently seems to aggravate it. Recent studies indicate that the cause of exophthalmos in hyperthyroidism is local edema, sometimes associated with hypertrophy of the extraocular muscles. The author reports progressive post-thyroidectomy exophthalmos which he observed in a Negro girl aged 6. The case is of interest because toxic thyroid disease in very young children is unusual and is even more unusual in young Negro children. The character of this patient's toxicity was evidenced by her extreme nervousness, her voracious appetite with continued loss of weight, her constantly elevated pulse rate, respiratory rate and temperature, the crises which developed on two occasions and the degree of damage to the liver demonstrated ante mortem by serial function tests and confirmed by postmortem examination. The child's parents disregarded instructions given them when she was dismissed after the first operation. Ten months later irreparable damage to the eyes had occurred. The optic tissues removed at Naffziger's unroofing operation showed edematous changes, which were also present, though to a lesser degree, in the tissues removed post mortem. The case seems to fit into the "special ophthalmic type" of goiter described by Means and his associates. It may be that the use of irradiation rather than thyroidectomy might have saved the child's eyes and ultimately her life. It is reasoned that with a less abrupt alteration in the endocrine balance induced by irradiation there is a greater chance for more gradual readjustment of the optic structures.

Arkansas Medical Society Journal, Fort Smith

40:171-192 (March) 1944

Perforated Peptic Ulcer and Complications: Report of 4 Cases. M. B. Bowman.—p. 171.

40:193-212 (April) 1944

Problem of Tuberculosis in Mental Hospitals. A. C. Kolb.—p. 194.

Bull. of the U. S. Army Med. Dept., Washington, D. C.

75:1-122 (April) 1944

Effect of Prolonged Wet and Cold on Extremities. R. H. Patterson.—p. 62.

Simple Tests of Nerve Trunk Injuries. R. G. Spurling and D. D. Maisson.—p. 71.

Prophylactic Psychiatry in the Army. S. H. Kraines.—p. 77.

Fractures of Jaws. A. M. Maris.—p. 81.

Rehabilitation Program at Lawson General Hospital. N. E. Titus.—p. 88.

Emergency Barge Made with Aid Station Equipment. C. S. Shuman.—p. 93.

Mosquito Transmission of Venezuelan Virus Equine Encephalomyelitis in Trinidad. R. T. Gilyard.—p. 96.

New Technic of Prophylaxis in Venereal Disease. T. G. Tousey, E. J. Richter, C. Glazer and H. Abramson.—p. 108.

Index of Severity of Criminalism or Psychopathy. I. Mason.—p. 110.

Self-Retaining Traction for Use in Amputations. C. N. Pease.—p. 115.

Dental Infection and Urticaria. C. G. Emerson.—p. 116.

Canadian Journal of Public Health, Toronto

35:99-136 (March) 1944

Integration of Preventive and Curative Medicine in Health Insurance: I. D. S. Lewis.—p. 99.

Integration of Preventive and Curative Medicine in Health Insurance: II. F. W. Jackson.—p. 104.

Recent Advances in Tuberculosis Control. R. G. Ferguson.—p. 109.

Recent Advances in Child Hygiene. R. R. Struthers.—p. 113.

Population Changes Revealed by 1941 Census. O. A. Lemieux.—p. 120.

Infant Welfare Service in Lamont Health District. H. Siemens.—p. 132.

Journal of Allergy, St. Louis

15:77-162 (March) 1944

Hypersensitiveness of Mucous Membrane: IV. Effect of Local Reactions Elicited by Specific and Nonspecific Excitants on Ophthalmic Mucous Membrane in Allergic and Nonallergic Individuals. H. Sherman and L. Feldman.—p. 77.

Quantitative Method for Measurement of Precipitin Reactions. M. C. Johnson, H. L. Alexander, R. Robinson and J. H. Alexander.—p. 83.

Blood Studies in Allergy: I. Direct Counting Chamber Determination of Eosinophils by Propylene Glycol Aqueous Stains. T. G. Randolph.—p. 89.

Weather and Death in Asthma. W. F. Petersen and W. T. Vaughan.—p. 97.

*Relationship of Bronchial Asthma (and Hay Fever) to Pulmonary Tuberculosis. A. M. Tocker and A. G. Davidson.—p. 108.

Association Between Red-Green Color Blindness and Some Cases of Asthma and Hay Fever. H. B. Molholm.—p. 120.

Pollen Studies of Phoenix Area. H. Randolph and Margaret McNeill.—p. 125.

Pollen Content of Air in Rio de Janeiro, Brazil. J. B. Greco and A. O. Lima.—p. 138.

Administration of Nicotinic Acid and Calcium Lactate in Urticaria. Dorris Coss Chambers and H. S. Bernton.—p. 141.

Histaminic Cephalgia: Report of Case. L. W. Swanson.—p. 144.

Allergy to Odor of White Potato (Irish Potato). A. J. Horesh.—p. 147.

Vitamin B₁ Hypersensitivity with Desensitization: Report of Case. M. M. Mitrani.—p. 150.

Relationship of Bronchial Asthma to Pulmonary Tuberculosis.—Tocker and Davidson direct attention to the great divergences of opinion concerning the coexistence of pulmonary tuberculosis and bronchial asthma. Statistics have usually been obtained either by studying the incidence of tuberculosis among patients with bronchial asthma or by studying the incidence of bronchial asthma among patients with active pulmonary tuberculosis. The authors present their observations on patients hospitalized for active tuberculosis. Failure to differentiate between true bronchial asthma and asthmatoïd symptoms caused by intrapulmonary lesions was undoubtedly responsible for the wide variations in the findings of earlier investigators. Tuberculous mediastinal lymph nodes, chronic bronchitis, pulmonary emphysema, bronchiectasis, displacement of the mediastinum and trachea, neoplasm, foreign bodies and particularly tracheobronchial tuberculosis may produce asthma-like symptoms. Before the era of the roentgen rays the underlying pulmonary pathologic condition was frequently missed, so that conditions causing asthmatoïd symptoms were commonly diagnosed as bronchial asthma. Today this problem is partly

solved by the application of such criteria as a positive family or personal history of atopy, positive cutaneous reactions to common allergens, an excess of eosinophils in the sputum, a favorable clinical response to epinephrine and a characteristic symptomatology and clinical course. The authors made their studies on 386 adult patients with active pulmonary tuberculosis at Sea View Hospital in New York City. They found that 12, or 3.1 per cent, presented a past or present history of bronchial asthma, and 11, or 2.8 per cent, a history of hay fever. These figures approximate the incidence of these illnesses in the normal population. Of the 11 cases with hay fever only 2, or 18 per cent, gave a history of asthma; this did not exceed the anticipated incidence. These findings refute the reports of earlier writers that (a) tuberculosis and asthma are mutually exclusive, (b) tuberculosis predisposes to asthma and (c) there is a common, specific form of asthma based on an allergy to the tubercle bacillus. The allergens producing bronchial asthma in patients with tuberculosis are the same as those producing asthma among the nontuberculous. The effectiveness of skin testing with these allergens, however, may be impaired as a result of diminished cutaneous reactivity in such cases. Asthmatic symptoms tend to improve with activity of a tuberculous process and to recur with the healing of the infection. Asthmatic seizures are a potential source of danger to the favorable course of tuberculosis.

Journal-Lancet, Minneapolis

64:35-66 (Feb.) 1944

Sex Hormones and Their Relationships. H. O. Drew.—p. 35.

Celiac Syndrome in Children. R. E. Dyson.—p. 40.

Hematuria and Its Significance. L. L. Howard.—p. 46.

Low Dosage Roentgen Therapy for Amenorrhea and Sterility. C. Heilman and G. W. Hunter.—p. 48.

Discussion of Some of Newer Drugs. I. J. Bridenstine.—p. 49.

64:67-94 (March) 1944

Tuberculosis Among Children of Preschool Age. F. E. Torres, J. A. Myers and F. E. Harrington.—p. 67.

Abdominal Pregnancy: Case Report. J. D. Graham.—p. 78.

Treatment of Eye Diseases by General Practitioner. W. M. Banc.—p. 80.

Walter Reed in Minnesota. Bertha L. Heilbron.—p. 82.

Journal of Urology, Baltimore

51:235-332 (March) 1944

Adenomyosarcoma of Kidney in Adult (Wilms' Tumor): Report of Case. D. A. Wood.—p. 235.

*Carcinoma of Renal Pelvis: Histopathologic Study of 75 Cases, with Special Reference to Prognosis. J. R. McDonald and J. T. Priestley.—p. 245.

Quantitative Microchemical and Spectrographic Data on Renal Calculi and Their Relation to Infection. H. E. Thompson, L. T. Steadman, J. A. Benjamin and W. W. Scott.—p. 259.

Focal Embolic Glomerulonephritis, Nonsuppurative: Case Report. C. Ferguson.—p. 272.

Tuberculosis of Kidney: Report of Case. S. L. Wang and A. V. Flaque.—p. 275.

Renal Rickets Syndrome. W. G. Hayward.—p. 278.

Duodenal Fistula After Kidney Surgery: Case Report. D. H. Schneider.—p. 287.

Tumors of Testis Following Mumps Orchitis: Case Report and Review of 24 Cases. J. B. Gilbert.—p. 296.

Operative Technique for Cryptorchism. R. H. Abrahamson.—p. 301.

Bacillus Welchii Infections Complicating Surgical Procedures on Upper Urinary Tract. J. A. Lazarus.—p. 315.

Observations of Action of Koagamin. W. P. Herbst and J. J. Weinstein.—p. 325.

Army General Hospital. F. C. Hamm.—p. 329.

Carcinoma of Renal Pelvis.—McDonald and Priestley review observations on kidneys which were surgically removed at the Mayo Clinic between 1904 and 1940. Kidneys in which the artery and vein could not be identified were discarded. Seventy-five specimens of carcinoma of the renal pelvis were used in this investigation. While most observers divided these neoplasms into papillary and nonpapillary types, the authors suggest a workable classification, dividing them into three groups: (1) papillary, (2) papillary with infiltration and (3) infiltrative. This classification, the involvement of the main renal vein and its tributaries or of the perineural lymphatics, and the histologic grade of the neoplasm would appear to be three important factors in ascertaining a more adequate prognosis for patients following surgical removal of a carcinoma of the renal pelvis. As the best treatment for these neoplasms the authors suggest nephrectomy with removal of the upper

third of the ureter in the infiltrating group of carcinomas, while nephroureterectomy with removal of a cuff of the bladder around the corresponding ureteral orifice is advisable in the papillary types, whether infiltration is or is not present.

Medicine, Baltimore

23:1-104 (Feb.) 1944

- Secondary Pellagra. W. B. Bean, T. D. Spies and M. A. Blankenhorn.—p. 1.
Acridine Antiseptics: Review. G. J. Martin.—p. 79.

Minnesota Medicine, St. Paul

27:241-336 (April) 1944

- *Posterior Herniation of Intervertebral Disk: Analysis of 65 Cases. W. T. Peyton and J. D. Levin.—p. 263.
*Torsion of Uterus. C. C. Bell.—p. 274.
Traumatic Rupture of Intestine. A. N. Collins.—p. 276.
Desmoid Tumor. D. B. Judd and J. C. Masson.—p. 279.
Present Status of Intravenous and Retrograde Pyelography. W. E. Hatch.—p. 281.

Posterior Herniation of Intervertebral Disk.—Peyton and Levin present a follow-up analysis of 65 patients with herniated disk of the lumbar spine treated by operation at the University of Minnesota Hospitals. The maximal period of follow-up was five and one-half years, the minimal period eighteen months. Complete relief was obtained in approximately two thirds of the patients and improvement in an additional 16 per cent. Backache, which was present in every case before operation, was completely obviated in approximately 70 per cent of the cases and relieved to a great extent in an additional 20 per cent. The sciatic syndrome, or evidence of root irritation, present in 96 per cent of cases before operation, was present in 27.5 per cent of cases after the operation. Similarly, the aggravation of pain with coughing and sneezing that was present in 88.7 per cent of cases before operation was present in 23 per cent at follow-up examinations. The lumbar curve was restored in 34 per cent. Muscle spasm was relieved in 71 per cent, which is approximately the same number that were relieved of the symptoms of root pain. Sciatic tenderness was eliminated in 86 per cent and scoliosis in 99 per cent of those having it. Straight leg raising was restored to normal in 65 per cent. Sensory disturbances were altered but little by the surgical procedure; they were improved in 6.2 per cent, indicating that damage due to compression of the rootlets is irreversible in many instances. Atrophy was unaltered by surgery.

Torsion of Uterus.—Authors who have reported cases of torsion of the uterus are fairly well agreed on the etiology. The predisposing causes most favored are pelvic tumors, adhesions, laxity of the supporting ligaments and abdominal wall, and a soft, thin walled lower uterine segment. A large asymmetrical uterine fibroid is commonly a predisposing factor. The most favored activating factor is a sudden twist or turn of the body, such as suddenly turning over in bed. The twisting motion of sweeping or scrubbing a floor or operating a hand scythe, all of which require a swinging motion of the body, are felt by many authors to be etiologic factors. The initial symptoms are due to injury to the structures in the pedicle, which sets up secondary changes and later leads to involvement of the surrounding organs. The structures affected are the cervix, ganglions and nerves, uterus, broad ligaments, bladder and rectum. The usual symptoms are the sudden onset of severe, acute, generalized abdominal pain accompanied by nausea or vomiting and soon followed by shock. There is no single characteristic symptom on which to base a diagnosis. The author's patient, aged 31, developed obscure abdominal symptoms in her fifth month of pregnancy. Exploratory laparotomy disclosed that the uterus had rotated to the right through 180 degrees. The left fallopian tube and broad ligament were stretched across the posterior surface of the uterus, which was directed anteriorly. The uterus was tense, but there was a suggestion of loss in normal consistency. It was rotated back into normal position, and continuous hot wet packs were applied for a time, but since there was no change in its appearance a supravaginal hysterectomy was done. Some writers claim to have reduced uterine torsion by manipulation. Most authors,

however, agree that such a procedure should be reserved for mild cases in early pregnancy. In frank torsion, with severe symptoms, nothing short of operation should be considered. Operation should not even be delayed for temporary antishock measures, since the initial shock soon merges into progressive collapse as the vascular and nervous damage becomes more pronounced. At operation it may seem advisable simply to reduce the torsion if all tissues are in normal condition and there is no pelvic abnormality which makes recurrence probable. If circulation has been long obstructed it is necessary to remove all devitalized tissue.

Missouri State Medical Assn. Journal, St. Louis

41:49-68 (March) 1944

- Present Status of Cancer of Colon and Rectum. E. D. Sugarbaker.—p. 49.
Unusual Case of Arsenical Dermatitis: Report of Case. E. P. Monahan.—p. 54.
Original Pressure Point Technic for Insertion of Caudal Needle. J. R. Compton.—p. 61.

41:69-90 (April) 1944

- Poliomyelitis. L. R. Jones.—p. 69.
Treatment of Infantile Paralysis. J. A. Key.—p. 70.
Poliomyelitis. D. Walthall.—p. 73.

New England Journal of Medicine, Boston

230:339-368 (March 23) 1944

- Therapy with Female Sex Hormones. G. V. S. Smith.—p. 339.
Methods of Diagnosis of Jaundice. F. W. White.—p. 344.
Therapeutic Value of Two New Sulfonamide Compounds, Succinylsulfathiazole and Phthalylsulfathiazole, in Experimental Trichinosis. D. L. Augustine.—p. 349.
Malaria in Massachusetts. V. A. Gettling.—p. 350.

230:369-418 (March 30) 1944

- *Clinical Evaluation of Sulfamerazine. D. G. Anderson, C. S. Oliver and C. S. Keefer.—p. 369.
Encapsulated Pleural Effusion Due to Heart Failure: Report of 2 Cases. A. H. Russakoff and T. Weinberg.—p. 379.
Psychiatry. V. P. Williams.—p. 382.

Clinical Evaluation of Sulfamerazine.—Anderson and his associates administered sulfamerazine to 278 patients with bacterial infections, such as the various types of pneumonia and of meningitis, erysipelas and infections of urinary tract and of the ear and throat. Sulfamerazine exhibited a therapeutic efficiency similar to that of sulfadiazine in the treatment of pneumococcal pneumonia, meningococcal meningitis and erysipelas. Sulfamerazine was clinically effective in total doses that were on the average one half to one third smaller than the amounts of sulfadiazine usually administered for similar conditions. Toxic reactions to sulfamerazine were in general of the same character and occurred with about the same frequency as those caused by sulfadiazine. Two exceptions should be made to this statement: Sulfamerazine has a greater tendency to cause leukopenia than has sulfadiazine and the incidence of drug rash and drug fever may be somewhat higher. Sulfamerazine is a potent chemotherapeutic agent and a valuable addition to the sulfonamide derivatives already in general use.

Northwest Medicine, Seattle

43:31-64 (Feb.) 1944

- Pathogenesis of Peptic Ulcer. J. S. Sweeney.—p. 36.
Peptic Ulcer in Children: Case Report of Perforation. L. R. Hutchins.—p. 40.
Epidemic Meningitis. I. R. Juster.—p. 42.
Electric Shock Therapy: Report from 100 Private Cases. N. K. Rickles.—p. 44.

43:65-96 (March) 1944

- Bacillary and Amebic Dysentery. W. L. Voegtlin.—p. 69.
Hypertensive Disease in Unilateral Kidney Pathology Relieved by Nephrectomy. J. H. Besson.—p. 73.
Gangrene in Diabetes Mellitus. L. J. Palmer, C. A. Mangham and P. Booth.—p. 75.
Blood in Stool in Infants and Children. M. S. Rosenblatt.—p. 78.
Melastasizing Intracranial Tumors. W. B. Dublin.—p. 83.

Public Health Reports, Washington, D. C.

59:281-316 (March 3) 1944

- Location and Movement of Physicians—Methods for Estimating Physician Resources. E. H. Pennell.—p. 281.

Radiology, Syracuse, N. Y.

42:213-318 (March) 1944

- Roentgen Diagnosis of Bronchiogenic Carcinoma. H. L. Shinall.—p. 213.
Carcinoma of Esophagus in Association with Achalasia of Cardia. S. R. Bersack.—p. 220.
New Gallbladder Contrast Medium: Priodax. L. Bryan and N. S. Pedersen.—p. 224.
Oral Cholecystography: Comparative Study of Single and Divided Dose Method with Contrast Media in Liquid and Solid Form. L. W. Paul, E. A. Pohle and R. R. Benson.—p. 226.
*Cholecystography with Priodax: Report of 600 Examinations. H. W. Heike.—p. 233.
Baker's Cyst: Posterior Herniation of Knee Joint. H. H. Kuhn and J. E. Hemphill.—p. 237.
Low Voltage Contact Radiation Therapy: Further Experience. L. S. Goin.—p. 241.
Treatment of Osteogenic Sarcoma with Preoperative Roentgen Radiation in Large Doses. R. F. McNattin.—p. 246.
Theories on Effectiveness of Roentgen Therapy in Inflammatory Conditions. J. Borak.—p. 249.
Roentgen Therapy with Low Dosage in Suppurative Infections. H. H. Pool.—p. 255.
Depth Dose Measurements for 100., 120., and 135. Kilovolt Roentgen Rays. C. B. Braestrup.—p. 258.
Regenerative Processes Induced by Gonadotropic Hormones in Irradiated Testes of Albino Rat. E. Momigliano and J. M. Essenberg.—p. 273.

Cholecystography with Priodax.—Heike used β -(4-hydroxy-3,5-diiodophenyl)- α -phenylpropionic acid, which is also known as priodax, in 600 gallbladder examinations. Administered in tablet form, a total of 3 Gm. of the active substance constitutes the usual dose. A fat free supper is eaten at 6 p. m. No preliminary laxative or diet is given. Immediately after supper the tablets are swallowed, whole or crushed, with water or fruit juice. The patient is told not to chew them because of the unpleasant burning and bitter taste. Following this the patient abstains from food (except water or fruit juices) until the examination is completed the following morning. A cleansing enema in the morning is advised. The author found that priodax is a reliable contrast material for cholecystography. No evidence of harmful effects was observed in 600 cases. Nausea, vomiting and diarrhea are considerably less than with tetraiodophenolphthalein. Diagnostic accuracy is as great as that achieved with tetraiodophenolphthalein, and in some respects (particularly in cases of a nonfunctioning gallbladder) priodax seems to be more reliable.

Rhode Island Medical Journal, Providence

27:101-152 (March) 1944

- Acute Respiratory Diseases. A. M. Burgess.—p. 109.
Sulfonamides in Treatment of Common Diseases of Upper Respiratory Tract. K. K. Gregory.—p. 111.
Sulfonamide Treatment of Respiratory Diseases in Childhood. H. E. Utter.—p. 113.
Chemotherapy of Pneumonia. R. O. Bowman.—p. 116.

Southern Medical Journal, Birmingham, Ala.

37:123-186 (March) 1944

- *Morton's Metatarsalgia: Localized Degenerative Fibrosis with Neuromatous Proliferation of Fourth Plantar Nerve. L. D. Baker and H. H. Kuhn.—p. 123.
Revised Technique for Treatment of Empyema. E. J. McGrath.—p. 127.
Glandular Metaplasia of Epithelium of Urinary Tract. N. C. Foot.—p. 137.
Pneumoencephalography in Study of Sequelae of Head Injuries. F. H. Mayfield and J. C. Bell.—p. 142.
Implant Material: Production of Fibrous Tissue Around Fibers of Cotton and Other Foreign Material Implanted Subcutaneously in Rats. H. B. Searcy, E. B. Carmichael and M. C. Wheelock.—p. 149.
Role of Penicillin in Treatment of Bacterial Infections. W. E. Herrell.—p. 150.
Acute Infections of Hand. S. L. Koch.—p. 157.
Bradycardia in Children Under Ether Anesthesia. H. C. Slocum and C. R. Allen.—p. 159.
Premature Separation of Placenta. H. H. Ware Jr., W. C. Winn and E. C. Schelin.—p. 163.
Post-Thyroidectomy Laryngeal Paralysis (Bilateral): Medical and Surgical Aspects. P. H. Hollinger.—p. 169.
Dermatologic Problems in General Practice. P. A. O'Leary.—p. 175.
Health Problems Ahead. T. Parran.—p. 179.

Morton's Metatarsalgia.—Baker and Kuhn report 14 operations for removal of tumors of the fourth plantar digital nerve to confirm the operative results reported by Betts and by McElvenny in patients with Morton's metatarsalgia. They show that Morton's hypotheses have been disproved by the works of Betts and of McElvenny and by the cases herein reported, as the tumors have been found to lie in the web space between the third and fourth toes. The authors emphasize that Morton's

metatarsalgia syndrome is caused by a tumor in the fourth plantar digital nerve. The cause of this lesion is undetermined, but the anatomic relationships of the nerve and the pathologic findings indicate that it is a degenerative fibrosis of the nerve with neuromatous proliferation resulting from or irritated by repeated trauma. The characteristic history of the syndrome and the presence of a localized tenderness to deep palpation in the third web space or between the third and fourth metatarsal heads on the dorsal surface of the foot make the diagnosis simple. Excision of the tumor relieves the symptoms.

Surgery, St. Louis

15:367-520 (March) 1944

- Anterior Resection for Carcinoma Low in Sigmoid and Rectosigmoid. C. F. Dixon.—p. 367.
Fixation of Skin Grafts by Thrombinplasma Adhesion. F. Young and B. V. Favata.—p. 378.
*Notes on Diagnosis of Herniated Nucleus Pulposus in Lower Lumbar Region. R. G. Spurling and T. C. Thompson.—p. 387.
Use of Phlebography and Lumbar Sympathetic Block in Diagnosis of Venospasm of Lower Extremities: Preliminary Report. E. M. Papper and A. E. Imler.—p. 402.
*Lesions of Breast: Relationship of Benign Lesions to Carcinoma. O. T. Clagett, N. C. Plimpton and G. T. Root.—p. 413.
*Studies on Traumatic Shock: II. Restoration of Blood Volume in Traumatic Shock. E. I. Evans, G. W. Jones III and M. J. Hoover.—p. 420.
Cardiopulmonary Disturbances Associated with Mediastinal Displacement After Pneumectomy. H. C. Maier.—p. 432.
Roentgenographic Diagnosis of Torsional Deformities in Tubular Bones. H. Milch.—p. 440.
Derma-Fat-Fascia Transplants Used in Building Up Breasts. M. I. Berson.—p. 451.
Improved Cutting Edge for Padgett Dermotome. H. B. Shumacker Jr.—p. 457.
Observations on Intracisternal Injection of Potassium Phosphate in Dog. E. A. Smolik.—p. 460.
Traumatic Perforations of Small Intestine Due to Nonpenetrating Abdominal Injuries: Survey of 18 Cases. B. J. Ficarra.—p. 463.
Spinal Anesthesia: Study of Safety Factors and Postoperative Pulmonary Complication in 1,344 Consecutive General Surgical Procedures on Naval Recruits. E. D. Babbage and C. W. McLaughlin Jr.—p. 476.
Sensitivity to Local Application of Sulfanilamide. L. J. Taubenhaus.—p. 483.
Amino Acids and Blood Clot Retraction. P. M. Aggeler and S. P. Lucia.—p. 486.

Diagnosis of Herniated Nucleus Pulposus.—Spurling and Thompson state that a pathologic condition of the disks is responsible for symptoms in only a small percentage of patients with lame backs. In almost every instance of traumatic lesions of the lumbar intervertebral disks the first symptom is backache. Backache without radiation of pain into either leg is seldom caused by herniation of the nucleus pulposus. There may be one or more attacks of backache before the onset of sciatic pain. Where trauma produces gross injury to the intervertebral disk, the leg pain may occur simultaneously with the low back disability. Pain is usually present along the entire course of the sciatic nerve. Usually the sciatic pain remains unilateral, but there are instances of bilateral pain, and not infrequently the pain will shift from one leg to the other. Partial or complete remissions of symptoms occur characteristically in lumbar herniations of the nucleus pulposus. A patient with severe sciatic pain usually keeps the knee flexed; it is hard for him to get his heel to the floor. For this reason elevation of the heel of the shoe sometimes gives relief. Slight flexion of the knee and thigh gives relief of pain by relaxing the pull on the sciatic nerve. Any bending movement, sitting or exercising exaggerates the pain. In 60 per cent of lumbar herniations of the nucleus pulposus the diagnosis can be established accurately on clinical findings, but the remaining 40 per cent can be demonstrated only by exploratory operation or by myelography. A new myelographic medium, pantopaque, is now available which combines the desirable qualities of lipiodol and thorotrast and is more easily removed by aspiration. If a few drops are left, they are gradually absorbed.

Lesions of the Breast.—Clagett and his associates reviewed all the cases in which a benign condition of the breast was treated surgically at the Mayo Clinic during the years 1935 and 1936. The most common operative procedure used was local excision of the tumor. In some instances unilateral mastectomy and occasionally bilateral mastectomy had been done. An

attempt was made to trace 442 patients five to six years after surgical treatment at the clinic for benign lesions of the breast; 86.4 per cent were traced. Carcinoma of the breast subsequently developed in 7 cases, a crude attack rate of 1.8 per cent in the five to six year period. Carcinoma was not reported in any case of fibroadenoma or comedomastitis, but it did develop in the groups of patients who had chronic cystic mastitis (3.3 per cent) and chronic mastitis (1.6 per cent). The incidence of carcinoma of the breast in the entire series was five times as great as was the incidence of carcinoma of the breast in the population of women 25 to 65 years of age in Minnesota for the year 1940. Such findings emphasize the importance of following closely patients with cystic disease of the breast in order to observe any recurrence of a benign condition or a possible development of a malignant process.

Restoration of Blood Volume in Traumatic Shock.—Evans and his associates studied blood volume restoration in traumatic shock. One patient, after having recovered from the initial severe shock after treatment with one blood transfusion, on the third day had a normal blood pressure, slightly elevated pulse rate and no typical signs of shock. He was raised in bed to a better position for chest examination, when he suddenly died. Another shock patient similarly treated died shortly after he had been moved on his side for a spinal tap on the third day after admission. The authors were under the impression that the cause of death was probably a poor adjustment in the circulatory flow to the vital centers. They carried out a blood volume estimation at twenty-four hour intervals until the plasma volume had returned to normal levels. They observed that loss of blood or plasma in traumatic shock is associated with only a slow restoration of plasma volume. Three to four days may be required for the attainment of normal plasma volume levels. After shock, the plasma volume is not restored to normal until new plasma protein is drawn into the circulation. Plasma volume is not restored after shock by replacement with protein poor fluids withdrawn from the extravascular system. There are apparently no red cell reserves available for replenishment of red blood cells lost in traumatic shock either immediately or for three to four days after the injury. The proper therapy for traumatic shock after the emergency treatment with plasma requires the administration of adequate amounts of whole blood to replace red blood cells lost.

Tennessee State Medical Assn. Journal, Nashville

37:41-76 (Feb.) 1944

Shock. E. Haun.—p. 57.

37:77-112 (March) 1944

Traumatic Intussusception. L. A. Haun and E. Haun.—p. 77.

Malignant Granulosa Cell Tumor: Case Report. T. V. Banks.—p. 81.

Virginia Medical Monthly, Richmond

71:173-224 (April) 1944

Rehabilitation of Industrial Casualty. A. P. Aitken.—p. 177.

Curative Workshop. B. Greve.—p. 180.

Occupational Therapy in Tuberculosis Treatment. H. Hudson.—p. 183.

Role of Occupational Therapy in Mental Hospital. J. E. Barrett.—p. 186.

Occupational Therapist and Problems of Producing Her. Sue P. Hurt.—p. 188.

Role of Psychiatry in Alcoholism. R. V. Seliger and Victoria Cranford.—p. 191.

Tuberculosis of Vulva. R. Bates Jr. and M. P. Rucker.—p. 199.

Treatment of Pulmonary Tuberculosis by Artificial Pneumothorax. G. C. Godwin.—p. 203.

New Medical Practice Act. R. C. Duval Jr.—p. 205.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

52:87-138 (March) 1944

*Regeneration of Monkey Uterus After Surgical Removal of Endometrium and Accidental Endometriosis. C. G. Hartman.—p. 87.

*Clinical Significance of Rh Factor. P. A. Reynolds.—p. 103.

Clinical Observations and Surgical Experiences with Parotid Tumors. D. V. Trueblood.—p. 109.

Endocrine Theory Concerning Effects of Pituitary Hormones in Psychosis (Paranoia, Manic-Depressive Psychosis, Schizophrenia and Involution Melancholia): Case Report. S. Brock.—p. 119.

Postoperative Pulmonary Complications. F. F. Ham.—p. 129.

Regeneration of Monkey Uterus After Removal of Endometrium.—Hartman studied the regenerative power of the uterus following what he designates as hysterotomy rather than endometritectomy. In hysterotomy as practiced by the author, most of the endometrium is removed, including the basalis—

not merely the functionalis, which alone is normally involved in parturition or in menstruation. In six experiments the endometrium was wiped out as clean as possible with a cotton sponge, so that no vestige of mucosa was visible to the naked eye. More than 200 hysterotomies have been performed on monkeys, but only 103 have been tabulated for this study. The condition of the uterus subsequent to the single or multiple hysterotomies was recorded in several ways: first, in experiments with hormones, at the end of which the organ was sectioned for microscopic examination; second, by comparing the condition of both uterus and embryo at the first operation with the uterus and the new embryo at a subsequent hysterotomy. The later reproductive performance of the animals was also recorded. All the data obtained seem to justify the conclusion that a healing and regeneration of the damaged and almost completely eliminated endometrium proceeds at a rapid rate. Two weeks sufficed in 1 case. On another occasion three weeks proved ample time for the regeneration of the uterine lining and its preparation for successful nidification of the monkey vesicle. This performance of the endometrium is all the more remarkable because from the bare remnants of the basalis alone, with its independent circulation, there differentiates the functionalis with its system of spiral arterioles whose physiologic control differs widely from that of the basal circulation. In all cases in which menstrual cycles were recorded after hysterotomy, the menstrual periods seemed to differ in no important detail from the untouched virgin organ. The described removal of endometrium might throw light on the development of endometriosis in that it is inevitable that bits of tissue be "spilled," i. e. dropped as seed into the body cavity. As is to be expected, the numerous cases of extrauterine takes of such seedings fully confirm the experiments of Jacobsen and others. Some of the regenerated bits of transplanted tissue increased greatly in size, occasionally closing up into a rounded mass with endometrium inside. Chocolate cysts were quite common. The endometrium in these masses could frequently be related to the stage of the cycle, paralleling the normal uterine mucosa in situ. These observations do not prove or disprove Sampson's theory of the pathogenesis of endometriosis.

Clinical Significance of Rh Factor.—According to Reynolds, the Rh factor is inherited as a mendelian dominant. The Rh positive father may be a heterozygote or a homozygote. The heterozygote father mated to an Rh negative wife has a 50 per cent chance of producing Rh positive babies with a high probability that they will be erythroblastotic, and a 50 per cent chance of producing Rh negative babies who will be normal. There does not yet exist a laboratory test to determine whether the father is a heterozygote. If among his offspring there are both Rh negative and Rh positive individuals, he can definitely be classified as a heterozygote. The author urges caution in offering too grave a prognosis to parents presenting the erythroblastotic Rh status, for it is seldom possible to designate an Rh positive father as a homozygote, and thus normal pregnancies may occur following repeated erythroblastosis. Early delivery of the baby, with possible consequent death from prematurity, is to be done only after careful instruction of the parents. For at present there is no way of determining definitely the presence of erythroblastosis in the unborn fetus. Transfusion should always be preceded by Rh determination. It is suggested that individual Rh determinations be made of the entire population. Women suffering repeated abortions should have their Rh status determined. Further study should be made of postpartum anemias which may be the result of a reversal of the Rh mechanism in the case of the Rh negative infant and the Rh positive mother. Treatment of the erythroblastotic infant might best be attempted by alternating Rh positive and Rh negative blood transfusions. Murietta suggested that a counter foreign protein antibody might be discovered which would eliminate the Rh antibodies.

Wisconsin Medical Journal, Madison

43:281-380 (March) 1944

Early Diagnosis of Cancer of Cervix. R. E. Campbell.—p. 301.

Role of Cervix in Sterility. R. A. Reis and E. A. Bernick.—p. 306.

Surgical Repair of Burns. F. McDowell and J. B. Brown.—p. 310.

Reducing Hazards During First Week of Life. J. W. Prentice.—p. 316.

Treatment of Compound Fractures. E. L. Compere.—p. 320.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Lancet, London

1:107-138 (Jan. 22) 1944

Endemic Goiter in England: Argument for Preventive Action. Memorandum of Goiter Subcommittee, Medical Research Council.—p. 107.
Forward Surgery in Battle Period. G. K. Harrison.—p. 109.

Intrapelvic Rupture of Urethra. B. C. Murless.—p. 111.

*Identity of Patulin and Claviformin. E. Chain, H. W. Florey, M. A. Jennings, with Note on Crystallography. D. Crowfoot and G. Low.—p. 112.

Removal of Ether Vapor During Anesthesia. H. G. Epstein.—p. 114.
Sciatica: Study of 40 Cases. A. D. Le Vay.—p. 116.

Large Twins. L. M. Park.—p. 118.

*Prevention of Seasickness by Drugs. H. E. Holling, B. McArdle and W. R. Trotter.—p. 127.

Identity of Patulin and Claviformin.—The crystalline antibiotic from *Penicillium claviforme* is designated as claviformin. Chain and his collaborators point out that the formula $C_6H_8O_2$ was proposed for claviformin, but its molecular weight, which was determined by x-ray crystallographic records, indicated the formula $C_7H_8O_2$, which is the same as that of patulin. In view of the similarity between the chemical properties of claviformin and patulin, the mixed melting point of the two substances was determined. The mixture melted at between 109 and 110 C.—i. e., without any significant depression of the melting point of either substance. This strongly indicates the identity of patulin with claviformin. The final proof of the identity of the two substances has been obtained from crystallographic measurements. As regards biologic properties, identical results have been obtained with patulin and claviformin. Biologic tests show that the antibacterial activity is reduced by the presence of serum and that leukocytes are killed at concentrations smaller than those which are required to inhibit bacterial growth, confirming results previously published. Claviformin or patulin apparently has no advantage over more easily accessible antiseptics. Whether it is of value in the treatment of the common cold appears to depend on whether it possesses pharmacologic properties apart from its antibacterial activity or whether it has a viricidal action.

Sciatica.—Le Vay studied sciatica in 40 service men of an average age of 31 years. The physical signs were orthopedic and neurologic. According to the presence or absence of neurologic signs, two groups were differentiated. Neurologic symptoms occurred in 28 cases. In the 12 non-neurologic cases the average duration of symptoms was only twenty-two months, compared with thirty-four months in the neurologic group. The cases in which only orthopedic symptoms were present were in an earlier stage of development. If this is true, it should be possible occasionally to observe the transition. In 3 cases originally without neurologic features, these were observed to develop during a longish stay in the hospital. This and the similar clinical history encourage the belief that the only real difference between the two groups is one of clinical progress. Myelography or operation was felt to be justifiable only in the neurologic cases. The diagnosis was taken to the point of verification of disk prolapse only in 9 cases with neurologic signs. Four disks were operated on, and 5 were proved by myelography. All of these patients had the usual orthopedic signs. Disk prolapse need not be ruled out in the absence of neurologic changes when there are a suggestive history and an orthopedic state. In such cases there may be a place for air myelography and tomography to clinch a tentative diagnosis, and certain other features pointing to disk prolapse will be significant. Prolapsed disk is by far the commonest cause of sciatica in service patients.

Prevention of Seasickness by Drugs.—Holling and his co-workers attempted to develop a method of preventing seasickness in troops about to land on a hostile shore. All trials were conducted on the sea. Whenever there was a prospect of sufficiently rough weather, a party of about 70 soldiers was embarked on two motor minesweepers or trawlers. One hour before embarkation each man received either a dummy tablet or one of the drugs being tested. Some proprietary remedies available to travelers were tested, with no significant difference between the sickness rates in the treated and control groups.

Other drugs found to be without appreciable effect were methedrine, which is similar to amphetamine, diphenylhydantoin sodium and the barbiturates hexobarbitone and phenobarbitone. Atropine, hyoscyamine and scopolamine were shown to have a significant effect on seasickness. These drugs belong to the belladonna group. Scopolamine caused a greater reduction in seasickness than did any other drug. The dose of scopolamine was either 0.6 or 1.2 mg. The only unpleasant side effect noticed with use of the larger dose of scopolamine was the occasional complaint that dryness of the mouth made mastication difficult. The men were not drowsy and did not complain of ocular symptoms. Further tests on men carrying out strenuous military exercise disclosed that scopolamine did not dangerously diminish sweating in men undergoing severe exertion. In a small series of experiments in which 2 subjects took exercise in a hot chamber, it was found that the sweat output was somewhat less and the rise in rectal temperature somewhat greater when scopolamine had been taken. The differences were, however, small and probably insufficient to be of practical importance.

Praxis, Bern

32:581-594 (Aug. 12) 1943

*Skin Lesions in Brucellosis. A. Schoch.—p. 581.

Treatment of Gonorrhea. H. Tecoz.—p. 585.

Skin Lesions in Brucellosis.—Ten per cent of all veterinarians in Switzerland acquired cutaneous lesions after obstetric interventions on animals infected with *Brucella abortus*. According to Schoch these lesions are due to an allergic reaction of the skin to contact with brucella organisms. Acute brucellosis does not need to be present, because cutaneous lesions were seen not only in persons who had had brucellosis but in some who never had it. If the exanthems do not accompany acute brucellosis, the general condition may be good; fever and swelling of lymph nodes may be absent. The most frequent cutaneous manifestations are papulopustular eruptions and eruptions which resemble exudative erythema multiforme. The individual crop of efflorescences is rarely monomorphic; usually several forms concur. The differential diagnosis is difficult. Attempts to culture the brucella organisms from cutaneous blisters may fail because pus organisms grow more rapidly and thus obscure the brucella organisms. Subcutaneous inoculation into guinea pigs may yield the organism. Brucellosis can be ascertained by cutaneous reaction. In the presence of suspicious cutaneous lesions in persons who have aided in the delivery of animals with *Brucella abortus* the cutaneous test is more reliable than the blood agglutination test. Vaccines has not proved effective in the treatment of cutaneous lesions of brucellosis. The author uses a sulfur-mercury mixture locally and a pyrazole derivative internally. Protection of hands and arms with oils or with rubber gloves and disinfection of hands are valuable prophylactic measures.

Pediatria e Puericultura, Bahia

12:35-102 (Dec.) 1942. Partial Index

*Treatment of Rickets with Massive Dose of Vitamin D. A. Bahia,

A. Ribeiro, U. Freitas and G. Caldas.—p. 35.

Cardiazol (von Meduna) Therapy in Psychiatric Diseases in Children.

P. Junior.—p. 75.

Treatment of Rickets with Massive Dose of Vitamin D.—Bahia and collaborators administered a massive dose (15 mg.) of vitamin D_2 by mouth or of vitamin D_3 intramuscularly to 20 infants with rickets. The state of nutrition of these infants rapidly improved. Craniotabes disappeared on an average in forty-five days. Roentgenograms of bones showed recalcification even in 2 tuberculous infants with acute nutritional dystrophy. The drug was well tolerated in all cases. There were no refractory cases. Gastrointestinal disorders and diseases of the respiratory tract disappeared. The patients appeared cured when observed four months after administration of the vitamin. Administration of a massive dose of vitamin D is indicated for the prevention and the therapy of rickets as well as for the clinical and roentgenologic differential diagnosis. Rickets is a frequent condition in certain areas of tropical countries. Its incidence in Negro infants is not greater than that in white infants.

Book Notices

Rose's Foundations of Nutrition. Revised by Grace MacLeod, Ph.D., Professor of Nutrition, and Clare Mae Taylor, Ph.D., Associate Professor of Nutrition, Teachers College, Columbia University, New York. Fourth edition. Cloth. Price, \$3.75. Pp. 594, with 122 illustrations. New York: Macmillan Company, 1944.

The appearance of the fourth edition of this valuable textbook on nutrition attests the spirit in which it was originally written by the author and now is carried on by her associate, namely that of presenting the established information which is fundamental to human nutrition. To keep abreast of the rapid strides being made today in our understanding of nutrition requires such constant revision of textbook material as is found here.

The material presented in the book is developed from a rather too long discussion in the early chapters of the basic facts of nutrition such as energy metabolism and relationship of food to it, facts long since established, on which modern developments are pyramided, to subsequent consideration of the more recent and detailed contributions to the science of nutrition made by mineral and vitamin studies. In all instances the inclusion of the early background leading to the present day knowledge makes the reader appreciate the extent of our understanding of certain phases of nutrition and our limitations in other respects. The numerous striking pictures of animals which show the nutritional deficiency states make this book particularly useful for teaching purposes, as are the suggestions for further reading found at the end of each section.

Following the material treating on the factors which have been found essential for proper nutrition, practical application is made of these facts by discussing the contributions of these elements to the diet made by the various types of foods and the importance of their proper use in the nutrition of various population groups, particularly mothers and growing children. While the several basic types of foods are all covered here, it might have been better to consider them under the grouping of the seven basic food classes which is being so popularized at present and probably will have a significant effect on food thought in the future.

In presenting food values this book utilizes the unique system developed by the author of stating the food contribution in terms of shares, these being based on a unit which is a fraction of the daily requirements. Extensive tables are given for food value expressed in this manner as well as in terms of weight.

The book is one of the best of its type for teaching the fundamentals of foods and nutrition. Written in a straightforward, easily read style and well illustrated with impressionable photographs, it serves as a fine textbook in basic nutrition and reference source for food values.

Oral Pathology: A Histological, Roentgenological, and Clinical Study of the Diseases of the Teeth, Jaws, and Mouth. By Kurt H. Thoma, D.M.D., Professor of Oral Surgery and Brackett Professor of Oral Pathology, Harvard University, Boston. Second edition. Fabrikoid. Price, \$15. Pp. 1,328, with 1,388 illustrations. St. Louis: C. V. Mosby Company, 1944.

This edition, issued shortly after the first, represents an increase in text to include a few of the rare diseases with the addition of new illustrations and the replacement of others. By stressing pathologic processes the author tries to create a visual picture of microscopic changes in disease and correlate them with the clinical symptoms and the roentgenologic findings. This type of descriptive approach of clinical entities, often neglected in the average textbook, is emphasized throughout and, with the profuse illustrations, furnishes an excellent reference book for the diagnostic study of the patient by the clinician, for the interpretation of the x-ray illustrations about the head by the roentgenologist, and of the biopsy about the mouth by the histopathologist.

The numerous illustrations of patients, x-ray appearances and pathologic processes are instructive and well arranged. Those in color represent color photographs and photomicrographs. In a few instances the detailed histopathologic changes are insufficiently reproduced to correspond to the descriptive text.

The first portion is concerned with hereditary, endocrine, vitamin and other nutritive influences on the development of the

teeth and jaws. Systemic and local factors are discussed, with their effect on growth and structure. Functional and morbid changes under various physiologic and environmental conditions are discussed. Local experimental factors on teeth and gums is an interesting chapter. Dental caries, particularly from the investigative point of view, is well described; however, focal infection in odontogenic infection is disposed of briefly. The relationship of blood dyscrasias, deficiency diseases, metabolic disturbances, allergy and virus infection to lesions of the mouth are worthy of special emphasis.

The excellent bibliography appended at the end of each chapter includes medical as well as dental literature, together with important foreign contributions. While the book is primarily written for the dental profession, the medical practitioner will appreciate the large volume of general information that emphasizes the recent work in the investigative and pathologic phases of diseases of teeth and jaws as well as the illustrated chapters of lesions of the oral mucosa, lips and tongue. This volume will fill an important place in a medical laboratory.

Physique, Personality and Scholarship: A Cooperative Study of School Children. By R. Nevitt Sanford and others. From the Psychological Clinic, Harvard University, Cambridge, Massachusetts, and the Department of Child Hygiene, Harvard School of Public Health, Boston, Massachusetts, with the collaboration of other Departments of Harvard University. Monographs of the Society for Research in Child Development, Volume VIII, No. 1 (Serial No. 34). Paper. Pp. 705, with illustrations. Washington, D. C.: National Research Council, 1943.

This is a comprehensive study of the physical and psychologic growth and development of 48 children between the ages of 5 and 14 years. A group of investigators collaborated in this "clinical and exploratory study of the growth of the 'whole child.'" Emphasis is placed on the determination of syndromes representing meaningfully related groups of measurements, traits or other variables. The studies of personality and the environment are based on a theory of personality, "dynamic and organismic," as outlined by H. A. Murray. This concept of personality derives primarily from the works of Freud, McDougall and Allport; need as driving force is a concept basic to this theory. Relation of need to environmental force (press), evidence of need in overt behavior, the origin of needs, and changes in strength and in objects integrated with need constitute objects of this inquiry into personality structure. Numerous environmental and personality variables were exposed by reports derived from interviews with parents and teachers, by questionnaires and direct observations. Many physical observations and measurements are recorded, and a variegated battery of intellectual and personality tests were applied.

This is not a work for the clinician, educator or parent but for the research worker. Its chief value lies in the fact that it offers much opportunity for critical evaluation of research method and raises numerous possibilities for further study. As an attempt to find "some middle ground between mass statistics, on the one hand, and the purely clinical study of the individual, on the other" the work is successful. The authors are painstaking and self critical in presentation of summaries and discussions of conclusions. While this augments one's confidence in the work as a research in child development, the clinician would wish the summaries were grouped, coordinated and positively formulated in a manner that would give a clearer statement of the body of knowledge about children revealed by the study.

State Board Questions and Answers for Nurses: Essay and Objective Types. Compiled from Actual Examination Questions Given Throughout the Country by State Examining Boards. Twenty-Second edition. Cloth. Price, \$3.50. Pp. 1,159. Philadelphia, London & Montreal: J. B. Lippincott Company, 1944.

This edition brings up to date a volume which has gone through twenty-two editions since 1917. It contains questions which have been asked in state board examinations throughout the country. All the fields of nursing education are covered in a well organized manner. Each question is followed by the correct answer. The answers have been reviewed by the editorial panel, consisting of competent authorities in this field. Essay type questions and objective forms are covered. There is a brief article containing useful examination suggestions and principles addressed "to the student preparing for the state

examination." Improperly used, such volumes are educationally unsound. There are the dangers of undue emphasis on examinations and the substitution of question and answer study for study based on textbooks, journals and reference volumes. Memorizing of answers may replace a sound understanding of subject matter. The editorial panel is aware of these pitfalls, and the student is advised that his goal should be a thorough knowledge rather than a passing grade. Properly used, this volume should continue to serve a useful purpose. Proper use would seem to be to "supplement your textbook review of each subject by going through the questions in this book. Do not study the answer with the question, but ask yourself the question and attempt to answer it. Check your answer with that in the book and if there is disagreement find out which is the better answer."

Out of the Test Tube. By Harry N. Holmes, Ph.D. Fourth edition. Cloth. Price, \$3. Pp. 311, with 103 illustrations. New York: Emerson Books, Inc., 1943.

In an entertaining, readable manner Dr. Holmes presents the fundamentals of chemistry. The reader is introduced to each group of chemical substances or principles through historical development of man's knowledge and needs from prehistoric times. Each period of social and economic progress is marked by a noteworthy scientific discovery. Thus the cave man required only skins for clothing. The discovery of the silk fiber brought to Japan a 400,000,000 dollar export business, only to be lost by World War II and by the rise of a totally new industry based on the substitution of nitrate groups ($-\text{NO}_2$) into cellulose ($\text{C}_6\text{H}_{10}\text{O}_5$). Improvements of this new rayon industry have produced an annual world production of 1,250,000,000 pounds.

Some of the more intriguing chapters are "Chemists in Crime Detection," "Shall We Have Medicines and Anesthetics to Order?" and "Have You a Chemist on Your Board?" Not to neglect present day changes, the chapters on strategic war materials and on chemistry after the war modernize this edition of an already widely read book.

As past president of the American Chemical Society, Dr. Holmes has had the opportunity to observe many chemical developments in the United States at first hand, and his able narration in a style suitable for popular reading presents an excellent opportunity to persons who may be uninformed in the fundamental aspects and applications of chemistry.

O Darwinizme. [By] I. I. Mechnikov. [Darwinism.] Sbornik statey pod redaktsiyey akad. V. L. Komarova i prof. R. I. Belkina. Paper. Price, 10 rubles. Pp. 242. Moskva i Leningrad: Izdatel'stvo Akademii Nauk SSSR, 1943.

Mechnikov was one of the first of the important Russian biologists to acclaim the darwinian theory of evolution. Together with his friend the noted embryologist A. O. Kovalevskiy he contributed much to the sum total of data in support of this theory by his comparative embryologic studies. This work was written in 1876 and was published serially in the popular magazine *Vestnik Evropy*. Its belated appearance in book form makes nevertheless fascinating reading. It reveals the talented biologist as a brilliant popularizer and propagandist of darwinism. Several chapters are devoted to a lucid discussion of the views of Bonnet, Linné, Buffon, Lamarck, Cuvier, Matthew, Johannes Mueller and other naturalists and philosophers of the 18th and 19th centuries. There are chapters on the origin of species, on darwinism and medicine, on the descent of man and an interesting account of the centenary celebration of Darwin's birth in Cambridge, at which the author spoke on behalf of the Pasteur Institute of Paris.

Otosclerosis: An Index of the Literature with Abstracts and an Index of Authors According to Subjects (Year by Year). Volume IV 1936-1942, Inc. and Future (Loose Leaf) Additions. Issued by the Central Bureau of Research. Originally the Committee on Otosclerosis of the American Otological Society, Inc. Edmund Prince Fowler, M.D., editor. Fabrikoid. Various pagination. New Bedford, Mass.: Reynolds Printing, 1943.

The purpose of this loose-leaf index to the literature on otosclerosis is to make possible ready access to the now voluminous material on this subject. The articles are classified and briefly abstracted to facilitate reference still further.

Manual of the Diseases of the Eye for Students and General Practitioners. By Charles H. May, M.D., Consulting Ophthalmologist to Bellevue, Mt. Sinai and French Hospitals, New York. Eighteenth edition, revised with the assistance of Charles A. Perera, M.D., Associate in Ophthalmology, College of Physicians and Surgeons, Medical Department of Columbia University, New York. Cloth. Price, \$4. Pp. 520, with 387 illustrations. Baltimore: William Wood and Company, 1943.

The senior author of this widely known manual died in December 1943 shortly after the completion of this edition. The manual has kept to its original purpose of supplying medical students and general practitioners with essential information about the eye unaccompanied by unnecessary elaboration. The first edition appeared in August 1900; since then it has had a fantastic success. There have been numerous British editions as well as the eighteen American editions. The book has been translated into Spanish, French, Italian, Dutch, German, Japanese, Chinese, Portuguese and Urdu. The evidence is overwhelming that a manual of this type when well prepared is valued widely and persistently.

A Handbook for the Identification of Insects of Medical Importance. By John Smart, Ph.D., Assistant Keeper in the Department of Entomology, British Museum (Natural History). With Chapters on Fleas by Dr. Karl Jordan, F.R.S., and on Arachnids by R. J. Whittick, B.Sc., Assistant Keeper in the Department of Zoology. Boards. Price, 15s. Pp. 269, with 191 illustrations. London: British Museum, 1943.

This profusely illustrated book deals with the identification of arthropods of known medical importance found in Europe, Asia and Africa and the islands of the Pacific. Only passing reference is made to species found in North and South America. A few brief pages of introduction are devoted to the structure, life history and classification of insects, for it is assumed that persons using the book will have at least an elementary knowledge of the subject. The identification of each insect is given in detail, accompanied by drawings. Numerous keys to the different genera and species are very useful, while various tables are devoted to geographic distribution. An appendix contains notes on methods for collecting and preserving insects. The book is timely and should serve a useful purpose.

The Principles and Practice of Medicine: Designed for the Use of Practitioners and Students of Medicine. Originally Written by Sir William Osler, M.D., F.R.C.P., F.R.S. By Henry A. Christian, A.M., M.D., LL.D., Clinical Professor of Medicine, Tufts College Medical School, Boston. Fifteenth edition. Cloth. Price, \$8.50. Pp. 1,498. New York & London: D. Appleton-Century Company, Inc., 1944.

This edition appears only eighteen months after the fourteenth or semicentennial edition. It is the third under the present editor. In the preface Dr. Christian points out that war activities have accentuated the tempo of medical progress. Great numbers who formerly lived exclusively in temperate climates are now coming in close contact with new tropical parasitical and bacterial diseases. The airplane, the rationing of food, the dissemination of venereal diseases, the development of new methods of prophylaxis and treatment all require constant reevaluation in a textbook of this kind which purports to retain its usefulness. Treatment with penicillin and the sulfonamides is discussed in as up to date a manner as could be expected. Christian's Osler remains one of the leading textbooks of medicine.

Otorrinolaringología práctica. Por los Doctores Eliseo V. Segura, profesor titular de la Facultad de ciencias médicas de Buenos Aires, Georges Canuyl, profesor titular de clínica otorrinolaringológica de la Facultad de medicina de Estrasburgo, Pedro L. Errecart, profesor titular de la Facultad de ciencias médicas de La Plata, y Atilio Viale del Carril, jefe de clínica y adscrito a la Cátedra de otorrinolaringología de la Facultad de ciencias médicas de Buenos Aires. Cloth. Pp. 1,050, with 381 illustrations. Buenos Aires: Librería Hachette S. A., Palacio del Libro, 1943.

This book is both a review of the classic methods and a presentation of the modern methods of practical value for the clinical examination of patients with otorhinolaryngologic diseases as well as for the clinical, instrumental and laboratory diagnosis and for the medical and surgical therapy of these diseases. The book consists of seven parts in which these subjects in diseases of the pharynx, larynx, trachea, esophagus, nose, paranasal sinuses and the ear are thoroughly discussed in many chapters. The illustrations are clear. The book is well prepared and is of real practical value both to practicing physicians and to otorhinolaryngologists.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

ALLERGY TO MULTIPLE FOODS

To the Editor:—A boy aged 12 years is allergic to many foods, including wheat and rye; he is also moderately allergic to corn. This makes him quite a difficult case, since eating of bread precipitates an attack. Is there any way of desensitizing him against these substances? Is there any blanket desensitization such as large amounts of vitamin C? He has been tested with the Barkos method and found allergic to the following foods, including most of the pollens: orange, raisin, pineapple, prunes, oats, milk (1 plus), rice, rye, wheat, corn (1 plus); the control (soline) has been negative.

Morris Woxgiser, M.D., Brooklyn.

ANSWER:—A positive skin reaction to foods does not necessarily signify that the patient is clinically sensitive to all of them. It is necessary that the clinical import of these various foods be ascertained by their elimination and subsequent systematic addition to the diet. If he is found sensitive to several foods, the procedure should be as follows: The relatively unimportant foods, such as pineapple, prunes, rice and rye, can be entirely eliminated. Frequently tolerance to these foods can be established after a period of months or years by this process alone. In instances of moderate degrees of sensitivity, tolerance can be established by this method also in the case of the more important foods, such as wheat and milk. In cases of severe sensitivity such effects are not obtainable by mere avoidance. In all cases more rapid and more certain results can be obtained by active methods of desensitization. This consists, in principle, of oral daily administrations of minute but increasing doses of the food until a normal amount can be tolerated. In the average case this requires about five or six months. The beginning doses and the rate of increase will vary, of course, with the individual's grade of sensitivity. The procedure in the average instance of allergy to wheat would be about as follows: The first series of doses may be in the form of suspensions of flour in water. A teaspoon of wheat flour is thoroughly mixed with a glass of water. The first doses of this mixture taken twice daily are as follows: 1 drop, 2, 3, 4, 5, 6, 8, 10, 15, 20 drops, $\frac{1}{2}$ teaspoon, $\frac{3}{4}$, 1, 2, 3 and 4 teaspoons. From that point on puffed wheat grains may be used in the following daily doses: 1, 2, 3, 4, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20, 25, 30. From then on one may use level teaspoons of the puffed wheat as follows: 3, $3\frac{1}{2}$, 4, $4\frac{1}{2}$, 5, $5\frac{1}{2}$, 6, $6\frac{1}{2}$, 7, 8, 9, 10, 11, 12. After that the doses may be measured in terms of square inches of bread slices, such as $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{2}$, 2, $2\frac{1}{2}$, 3, $3\frac{1}{2}$, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16. After a dose of 1 slice of bread is reached, wheat in other forms can be gradually added.

None of the so-called blanket desensitization methods, such as vitamin C, D, B₁, histamine or histaminase, have been found to be effective in the hands of most competent observers.

CLIMATIC AND HYGIENIC CONDITIONS IN BRAZIL

To the Editor:—Would you let me know the sanitary, climatic and other health factors in Brazil in the sections about Sao Paulo and Rio de Janeiro? I would also appreciate any reference you might give me as to where these subjects might be gone into in detail. M.D., New York.

ANSWER:—The state of São Paulo and Rio de Janeiro are the most heavily populated regions of Brazil. They are provided with most of the modern developments and facilities. Sanitary and hygienic conditions are excellent in the capitals, less so in distant areas, especially on the western side. Water supply, sewerage system, milk and food care are, as a rule, modern and adequate. Climatic conditions vary in different parts of the states. In the littoral the climate generally is semitropical. As high temperatures, rainfall and humidity are favorable to the existence of many parasites, endemic parasitic diseases such as malaria, ancylostomiasis, typhus and amebiasis are found in those regions. Infestation, as a rule, is absent or only moderate in the plateau zones. However, the damming of great bodies of water in the warm season produces favorable habitats for the development of certain parasites such as *Anopheles darlingi*, with consequent endemic spreads of malaria. Detailed literature on the subject may be found in "Arquivos de higiene" and "Arquivos de higiene e saúde pública, São Paulo."

CHRONIC COUGH AND HYPERTENSION

To the Editor:—I should like to know if a severe attack of pneumonia and its sequels which may become chronic, such as chronic respiratory weakness, infection of the upper air passages and inflammation of the lower respiratory system, have any proximate cause or influence on the production of hypertension in a person later in life, especially when he is predisposed to the development of general arteriosclerosis. This patient had a right lower lobe pneumonia which left him on recovery with chronic bronchitis associated with a chronic cough. He is also of pyknic constitution and cyclic emotional personality, which predisposes him to arteriosclerosis. The question is Does the chronic cough resulting from the pneumonia have any influence in the development of elevated blood pressure, especially when the individual is predisposed to arteriosclerosis anyway? Can you refer me to some book or monograph?

Allon E. Lee, M.D., Washington, D. C.

ANSWER:—Relationship between chronic cough from pneumonia, bronchitis or bronchiectasis and the development of hypertensive arterial disease has not been demonstrated. Chronic fibrotic bronchitis and bronchiectasis may well be factors increasing the circulatory resistance in the lesser (pulmonary) circulation and thus etiologically significant in right ventricular hypertrophy (Brenner, O.: Pathology of the Vessels of the Pulmonary Circulation, *Arch. Int. Med.* 56:976 [Nov.] 1935. Brill, I. C., and Krygier, J. J.: Primary Pulmonary Vascular Sclerosis, *ibid.* 68:560 [Sept.] 1941).

Coughing causes a considerable, but briefly transient, rise in the systemic blood pressure (Battro, A.; González Segura, R.; Elicabe, C. A., and Araya, E.: Influence of Respiration on Blood Pressure in Man, *ibid.* 73:29 [Jan.] 1944), but this does not imply, or even suggest, that chronic cough tends to induce hypertensive disease. The psychosomatic influences of the tensely emotional personality mentioned are much more likely to be etiologically significant than the chronic cough. It is quite possible that the cough is aggravated and continued by a low grade cardiac incompetence, with slight fluid accumulation in the pulmonary bases. A good recent summary of the present understanding of the etiology and pathogenesis of hypertensive arterial disease is to be found in chapter 31 of Stieglitz, E. J.: Geriatric Medicine, Philadelphia, W. B. Saunders Company, 1943.

VEGETABLE SHORTENINGS, MARGARINES AND BUTTER

To the Editor:—Please let me know the digestibility of the oils in the vegetable shortenings such as Crisco and Spry, and oleomargarines, especially in comparison with butter. You might include other comparisons with butter, such as vitamin content in different seasons.

M.D., New York.

ANSWER:—The digestibility of the proprietary vegetable shortenings and the margarines compares favorably with the digestibility of butter fat. The opinion formerly prevailed that the ease of absorption of a fat depended on its melting point, the higher the melting point the less well absorbed. This is now considered to be untrue. The digestibility appears to depend more on the degree of unsaturation of the fatty acids and the shortness of the carbon chains of these acids.

Shortenings and margarines have melting points of about 115 and 95 F. respectively and are made of various proportions of hydrogenated and unhydrogenated vegetable fats. Feeding studies on animals show that their nutritional value is essentially the same as that of the animal butter fat. They also appear to fulfil growth requirements equally well. In a study on human beings several highly hydrogenated vegetable oils with melting points above 120 F. gave digestibility coefficients averaging 90.9 as compared to 97.8 for butter. The ordinary commercial products are not as completely hydrogenated as the fats used in this work.

The processed vegetable oils contain no vitamin A. In the case of margarine, most brands now have 9,000 units of vitamin A added per pound. Average butter contains 12,000 units per pound, with a somewhat higher value found in summer butter.

GONADOTROPINS AND SPERMATOGENESIS

To the Editor:—I would appreciate information on glandular products which have resulted in improving spermatogenesis. M. C., U. S. Army.

ANSWER:—There is at the present time a difference of opinion as to whether chorionic, pituitary or equine gonadotropins increase spermatogenesis in man. Two recent references concerning the effect of these hormones in human spermatogenesis are:

Davis, C. D.; Pullen, R. L.; Madden, J. H. M., and Hamblen, E. C.: Therapy of Seminal Inadequacy, *J. Clin. Endocrinol.* 3:265 (May) 1943.

Pullen, R. L.; Wilson, J. A.; Hamblen, E. C., and Cuyler, W. E.: Clinical Reviews in Endocrine Endocrinology: Treatment of Seminal Failure, *ibid.* 2:730 (Dec.) 1942.

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JUNE 17, 1944

AMERICAN MEDICINE AND THE WAR

PRESIDENT'S ADDRESS

HERMAN L. KRETSCHMER, M.D.

CHICAGO

We meet this year in the midst of an extensive global war. It is not a novel experience for the American Medical Association, which was organized in 1847 in the midst of our war with Mexico. Since then the American Medical Association has lived through and its members have taken part in the Civil War, the war with Spain, the Boxer Rebellion, the Mexican Border activities, World War I and the present world war.

The Association has been vitally interested in the prosecution of the war effort and is lending all its efforts to aid in a speedy and a successful winning of the war.

At present some 55,000 physicians are in the armed forces. They entered on a voluntary basis. Many were just reaching the pinnacle of success, many had served shortened periods of internships and residencies, and others ceased their research to serve their country. Who could say that these physicians had any selfish or ulterior motives? I would like to stress again that their response to duty was purely voluntary. Unfortunately many persons, both in and out of the armed forces, do not realize this and believe that some sort of a special enlistment was provided for the physician.

I would pay my respects also to another group of physicians whom I shall call the unsung heroes of this war. I refer to the older practitioners of medicine who remained behind. All of them are doing more than double duty. Many who had retired from active practice reentered the practice of medicine; some who had partially retired gave up their contemplated leisure and are working harder than ever before. Not only have these physicians carried a heavier load in practice and some in teaching, but others in addition have aided the government in various ways such as examining selectees, aiding civilian defense, advising the Office of Price Administration and helping other governmental agencies.

It would be difficult to enumerate all the activities of the Association in the war effort; I will mention just a few of them. The publication of *War Medicine* has been a scientific success from its very beginning; and it has been called the Medical Officer's Bible. The Council on Pharmacy and Chemistry has cooperated with many government agencies in passing on drugs and biologic preparations used by the armed forces. The Council on Physical Therapy has aided manufacturers of such devices in meeting the needs of the armed forces and the civilian medical profession. The Council on Industrial Health has participated in many government conferences relating to the maintenance of industrial health during the war, the importance of which in production of war equipment is self evident.

President's address before the American Medical Association at the Ninety-Fourth Annual Session, Chicago, June 13, 1944.

The Bureau of Health Education has made its radio programs available to the highest ranking medical officers of our armed forces both here and abroad. The headquarters office has maintained a liaison office with the Procurement and Assignment Service for Physicians, Dentists and Veterinarians. The Council on Medical Education and Hospitals, the Bureau of Exhibits, the Bureau of Legal Medicine and Legislation have all contributed to and aided various governmental agencies in the winning of the war. The Council on Medical Service is analyzing plans for extending a high quality of medical care to all the people.

All of these increased activities have gone on with a sharp reduction in personnel in the headquarters office. Many of the employees have entered the armed forces and others have entered government services. The loss of key personnel is a serious handicap. The General Manager and the Editor have given unsparingly of their time and effort to the various governmental agencies whenever their services have been requested.

HEALTH OF THE NATION

Despite the large number of physicians in the armed forces, the people of this country have never enjoyed such good health as now. The death rate is the lowest in our history except for a slight, not serious, rise last year. Fortunately there have been no major epidemics such as the influenza epidemic in the last war. The venereal diseases are almost completely controlled, thanks to the sulfonamide drugs and penicillin, so that the medical schools have difficulty in obtaining enough patients for purpose of teaching the students. Tuberculosis, which often shows a rise during a war, has now reached an all time low. Pneumonia, called by Sir William Osler the friend of the aged, is no longer a danger as it was before the advent of the sulfonamide drugs. Cerebrospinal meningitis, which formerly had a death rate of 60 to 70 per cent, now has a mortality of about 5 per cent. During the past year more than 3,000,000 babies were born in this country, with the lowest maternal and infant death rates in our entire history, and this in the midst of the war effort. All in all, the wartime health picture in this country is most satisfactory.

HEALTH OF THE TROOPS

Never before have the troops of any nation enjoyed such good health, thanks to the widespread use of preventive measures of various sorts and to the broad vision of the Surgeons General of the Army, Navy and Public Health Service. Whereas disease in previous wars killed more men than bullets, the reverse is true in this war. The war injured likewise are receiving the finest surgical care possible, thanks to the splendid medical education of our young medical officers and also owing to the fact that in this war the medical officers are in front with the troops. Note the high mortality among the medical officers. In World War I the mortality among wounded not killed outright was about 9 per cent; in the present war it is about 2 per cent.

NUTRITION OF THE NATION

The nutrition of our people is excellent. I wish to disagree with the statement that one third of our people are poorly nourished. No longer do many physicians see cases of rickets, scurvy and other diseases due to malnutrition. There are isolated areas in this country where pellagra is found. This is a local problem and can readily be taken care of by the local medical profession; with proper management these diseases can be cured. Their prevention is being given every possible consideration.

I believe the question of nutrition is intimately associated with educating people to eat the proper kind of foods. Although many foods have been rationed, little difficulty has been encountered in maintaining a well balanced diet, and, in a certain measure, rationing has achieved desirable results.

USE AND ABUSE OF VITAMINS

Closely allied with the subject of nutrition is the widespread indiscriminate promotion and use of vitamins. It has been variously estimated that the people in this country will spend the better part of \$250,000,000 this year for various vitamin products. I do not wish to discredit the enormous progress that has been made in this field. The advances are most impressive. The treatment of some conditions requires vitamins. But these are problems for the physician and not for the radio broadcaster and the newspaper. Certainly the people in this country are not in such a state of malnutrition as to require the use of \$250,000,000 worth of vitamins. The excessive claims made for vitamins are beyond any basic medical evidence.

It seems to me that you and I and the American Medical Association have a serious obligation to our patients and to the public at large. We must embark individually and collectively on a program of education as well as a program of debunking. To listen to and to read the claims for vitamins, one is impressed by the close parallelism to the "patent medicine" advertisement of twenty-five years ago. Here again the solution to this problem rests with every member of the profession.

PROBLEMS OF THE AGED

As a result of the wonderful achievements of medicine in reducing mortality and with the increase in the span of life from some forty years in 1890 to approximately sixty-five years in 1943, more and more people reach the time of life when they become subject to the degenerative diseases, thereby creating new problems in medical care. Naturally there will be an ever increasing number of people in the older age group. In 1890, 2.7 per cent of our population were over 65 years of age; in 1900, 4 per cent; at the present time 9 per cent of our population are over 65.

With an increase in our understanding of the diseases of old age and with the improvements of surgical technic, we may reasonably expect a still further increase in the population over 65 years. In my own special field the operative mortality of the prostatic patient was 15 to 20 per cent. At the present time it is as low as $\frac{1}{2}$ of 1 per cent.

Our new health attainments have an important social implication. As more and more people reach this age there will probably be more and more unable to secure paying positions. The medical problems of this part of our population have been and are receiving the earnest study of the profession. Many of the present diseases of old age will be under control, their prevention worked out as well as cure.

SOCIALIZED MEDICINE

Nothing has disturbed the people of this country as much as have efforts to socialize the medical profession. Not only are the physicians in this country deeply concerned, but our fellow practitioners in the armed services are vitally interested. They who are rendering such fine service to our troops wonder what they are fighting for. They entered the service of their country to preserve the American way of life, to preserve our democratic ideals and our system of private initiative, and to rid the world of dictatorships.

Naturally they are concerned lest regimentation be foisted upon them during their absence from the country.

You and I have a sacred obligation to our colleagues who are rendering such splendid service on the battle fields all over the world. Let their trust in us be truly justified.

Under our present system of medical education and practice the people of this country have enjoyed the best health record of any nation on earth. Granted that there are some areas in which there is room for improvement in medical care. They can be taken care of on a local basis. The securing of a better distribution of medical care is no reason for regimentation of the entire medical profession.

Socialized medicine cannot show a comparable achievement with the results attained with our system of practice. We must acquaint the people with the hazards that always follow in the wake of this type of practice: deterioration in the quality of medical care and medical education, abolition of free choice of physician and increased taxes due to an over expanding bureaucracy.

PREPAYMENT PLANS

In order to meet the costs of so-called catastrophic illness, various plans have been devised in this country. Many different plans are in operation in many different places. They were carefully studied and put into operation. It was obvious that they would need change as they continued to serve their patients. Many of these plans are sponsored by state and county medical societies. In thousands of industries, workers and management have continued to purchase protection for the employee and his family by insurance against sickness and hospital costs. The medical profession has never been static. It has sought only to protect the quality of medical care while attaining a wider distribution.

In every plan the physician who renders the service is the paramount factor, but the physician knows that the circumstances under which medical care is given have much to do with its quality and with his responsibility. I can assure you that these problems are today more fully accepted by the medical profession as their responsibility than by any other group, and I can promise that medical leadership will more certainly solve these problems satisfactorily than can be expected from any other group.

TO THE PHYSICIANS IN THE ARMED FORCES

And now a word to the 55,000 physicians in the armed forces in England, France, Italy, India, the South Pacific and elsewhere who cannot attend this session. The American Medical Association is deeply interested in you who are fighting the battles to preserve the American way of life. The Association is doing everything in its power to safeguard the quality and standard of medical practice during your absence and will do everything in its power to aid you when you return.

The Council on Medical Education and Hospitals has made an extensive study of existing facilities for graduate medical education and is giving thought to the establishment of further facilities so that medical officers who have had an abbreviated internship or whose residency was interrupted may, on return, complete their education. Many of you have already indicated that you wish further opportunities for study and training. Most of you will return to your homes and your practices. Some of you may wish to establish yourselves in new locations. In order to supply you with information, a new office is to be created in the headquarters of the American Medical Association.

To every physician in the armed forces has gone a questionnaire which will give him opportunity to express his needs and his opinions. The American Medical Association recognizes the voluntary gift that you have made by accepting your commissions. You have maintained for the men of our Army and Navy the lowest sickness and death rates ever achieved by any great military force. You are not forgotten; all of the medical profession assumes the obligation that the nation owes to you.

122 South Michigan Avenue.

BRONCHOPULMONARY MONILIASIS

MAJOR PAUL E. WYLIE

AND

MAJOR JOSEPH A. DeBLASE

MEDICAL CORPS, ARMY OF THE UNITED STATES

Bronchopulmonary moniliasis has been described as an infection of the lungs caused by *Monilia albicans* and is characterized by a chronic, usually progressive, course possessing a characteristic clinical picture.

Microfungi have been universal in distribution, and they are found as parasites or saprophytes on all forms of growth or decomposition. The varieties of fungi described are numerous, but the majority have been proved to be nonpathogenic. *Monilia albicans*, a yeastlike fungus, belongs to the imperfecta group of fungi, which appears to be highly pathogenic to man.

Monilial infections of most of the organs of the body have been described, and the fungi have been recovered from body secretions and discharges.¹

For some time mycotic diseases of the lung were considered to be quite rare, but recently they have been found to be more prevalent than was generally suspected. Reeves² reported 79 cases of bronchomycosis, of which 40 were designated as bronchomoniliasis. According to the Flinn³ a review of the literature in 1931 revealed that only 11 cases had been reported in the United States at that time. Today, however, moniliasis of the lung has been universally recognized.

MODE OF INFECTION

It has been found that the monilial fungus is widely distributed in the tropical and temperate climates. The incidence has been reported as high in the Southern United States.² It has been found that inhalation is an important factor in the contraction of the disease, and this has been attributed to the fact that the monilial fungus is exceedingly resistant to drying and can exist

for long periods of time in a dusty, dry environment.⁴ Monilias have been found to exist as saprophytes in the human mouth and secretions of the body.⁵ As a rule they are nonvirulent, but under suitable conditions they may become pathogenic to lung tissue. Such disease entities as bronchitis, pneumonia and influenza provide proper environment for the growth of the monilias. Ikeda⁴ set forth two factors which he believed essential in the development of bronchopulmonary moniliasis, namely the inhalation of the monilia fungus and a lowered resistance of the lining membranes of the bronchi or alveoli which would provide a suitable soil for the growth of monilias.

CLINICAL FEATURES

According to Ikeda⁶ bronchopulmonary moniliasis may be divided into several forms characterized by various symptoms and clinical courses. The mild form is characterized by slight cough, scanty sputum and, as a rule, normal temperature. These are the cases in which a diagnosis of chronic bronchitis is made until a more severe group of symptoms or signs make their appearance. The moderate form has as its outstanding symptoms and signs a pronounced cough, sputum which is tenacious and mucopurulent, and a low grade fever. Clinically this type may regress or have remissions and is frequently mistaken for chronic bronchitis, bronchiectasis or even bronchial asthma. The severe form is characterized by dyspnea, night sweats, cough, loss of weight and sputum which is sticky and glairy. It has an odor described as sweetish or yeastlike. The clinical findings in this type resemble diffuse bronchitis, bronchopneumonia, pulmonary fibrosis or pulmonary abscess.

DIAGNOSIS

The diagnosis of bronchopulmonary moniliasis cannot be made on the clinical or radiologic findings alone. Ultimately the laboratory must be the deciding agent in the diagnosis. However, the mere demonstration of monilial fungi in the sputum does not confirm a diagnosis of moniliasis. Woolley,⁷ in a series of sputum studies, found that of 141 patients examined in a sanatorium in Tuscon, Ariz., 17 gave mycologic findings and of this positive group 7 were positive for *Monilia albicans*. To make a proper laboratory diagnosis, staining and cultural methods should be used, and, in addition, animal inoculation must be employed to determine the pathogenicity of the strain of monilia. Castellani,⁸ one of the early workers in this field, postulated that the presence of monilias offered three possibilities: first, that the monilias were nonpathogenic and nonvirulent; second, that they were secondary invaders, and, third, that they were virulent and the true basis of bronchopulmonary disease. His criteria for the latter was the production of lesions in the lungs of animals inoculated with the isolated monilias.

Radiologically it has been noted that the process starts in the hilar region of the lung and spreads outward along the bronchovascular markings until the whole organ is involved. The process may remain localized in one lung but usually both are involved. The apexes are rarely affected primarily. The lesions have been described as opacities which have a fluffy, cotton-like appearance.²

1. Williams, E. G.; Douglass, E. D.; Emmons, C. W., and Dunn, R. C.: Mycotic Endocarditis: Report of a Case, *J. A. M. A.* 119: 333 (May 23) 1942. Ludlam and Henderson.⁵
2. Reeves, R. J.: The Incidence of Bronchomycosis in the South, *Am. J. Roentgenol.* 45: 513 (April) 1941.
3. Flinn, J. W.; Flinn, R. S., and Flinn, Z. M.: A Study of 9 Cases of Bronchopulmonary Moniliasis, *Ann. Int. Med.* 9: 42 (July) 1935.

4. Ikeda, K.: Bronchopulmonary Moniliasis, *Arch. Path.* 22: 62 (July) 1936.

5. Ludlam, G. B., and Henderson, J. L.: Neonatal Thrush in Maternity Hospitals, *Lancet* 1: 31 (Jan. 10) 1942. Woolley.⁷

6. Cited by Frank, T. J. F.: Bronchopulmonary Moniliasis, *Melbourne Hosp. Clin. Rep.* 12: 11, 1941.

7. Woolley, M. T.: Mycological Findings in Sputum, *J. Lab. & Clin. Med.* 23: 553 (March) 1938.

8. Castellani, cited by Ikeda.⁴

TREATMENT

In treating a patient with bronchopulmonary moniliasis, measures must first be taken to improve the general health. Mild and moderate cases respond very well to potassium iodide, which seems to have a definite effect on the monilial infection. In severe cases, however, little benefit is derived from its use. The dose of potassium iodide has varied by different workers from 15 grains (1 Gm.) three times daily to 75 to 100 grains (5 to 6.5 Gm.) daily. Some have suggested sodium iodide 15 grains intravenously and potassium iodide 120 grains (7.8 Gm.) orally daily for two weeks.

Marrett⁶ has used an autogenous vaccine of monilia with some benefit. Harve and Schmidt⁶ reported satisfactory results from small doses of x-rays. One author⁹ reported favorable results by using sulfapyridine.

REPORT OF CASE

History.—A white man aged 34 was admitted to the Station Hospital on July 17, 1941 with chief complaints of weakness, nausea, headache and pain over the left chest. The history revealed that his occupation prior to induction was cashier and hotel clerk. He had no tropical service. His habits were

was normal and equal on the two sides. The breath sounds were vesicular and normal except for some coarse sounds in the base of the right lung posteriorly. The heart gave no evidence of any enlargement and no thrills; the rate and rhythm were regular; no murmurs were audible in any body position. The abdomen was normal. No masses were palpable; no fluid nor distention was found. The liver was not enlarged. The spleen was not palpable. X-ray examination (fig. 1) July 18 showed slightly increased perivascular markings in both lower bronchial regions; otherwise the lung fields were clear. The heart was normal in size and configuration. There was partial calcification of the first costal cartilages.

The red blood cell count was 4,700,000, the white blood cell count 5,500, hemoglobin 100 per cent. The differential count revealed 4 per cent eosinophils, 2 per cent stabs, 56 per cent segmented forms, 33 per cent lymphocytes and 5 per cent monocytes. Urinalysis was normal. X-ray examination of the sinuses was normal. A diagnosis of sinusitis and bronchitis was made clinically. The patient was treated with ephedrine nose drops and application of hot packs to the bridge of the nose. The headaches subsided, the chest pain was relieved and the patient became symptom free. After an afebrile period of ten days and total hospitalization of twenty days he was discharged to duty on Aug. 6, 1941.

The patient was readmitted to the Station Hospital on Sept. 23, 1941. His complaints at this time were headache and pains

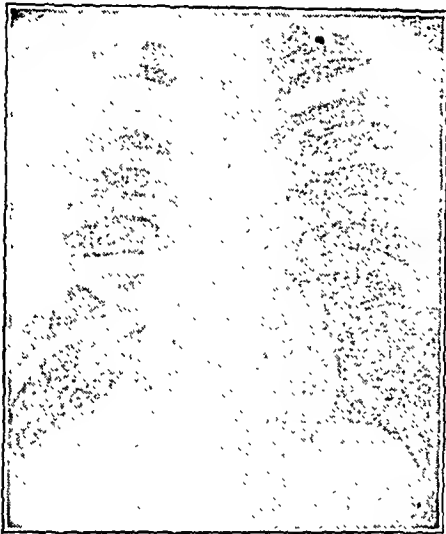


Fig. 1.—Perivascular markings in lower bronchial regions July 18.

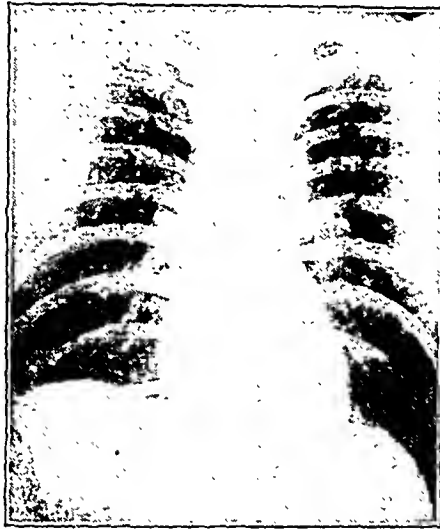


Fig. 2.—Irregular areas of infiltration scattered throughout both lung fields.



Fig. 3.—Extensive infiltration on 16th day.

irrelevant except for moderate smoking. The family history revealed that his father died of an unknown cause at the age of 34. His mother died of diabetes mellitus at the age of 46. He had one sister who was living and well. His present illness began six weeks prior to admission to the hospital. Pain in the chest and nausea were noted to occur concomitantly. The chest pain was described as a dull pressure pain which was intermittent. Headaches were dated back several years before entry into the service and they were described as frontal in location and sharp in character and they varied in duration from a few hours to several days. He gave a history of a loss of 20 pounds (9 Kg.) in the previous eight months. He had a mild cough, which was nonproductive, but this was a rather recent addition to his complaints. He had no shortness of breath nor night sweats.

Physical Examination.—The temperature was 98 F., the pulse rate 80 per minute and the respiratory rate 18 per minute and blood pressure 140/100 mm. of mercury. The patient's general appearance was good, and he showed no evidence of any physical or mental distress. The head was normal. Pressure over the frontal and maxillary sinuses elicited some pain. The ears and throat were normal. The nasal mucosa showed a mild inflammation. The neck showed no adenopathy, rigidity nor adenitis. The lungs were normal in expansion. The right infraclavicular fossa was deeper than the left. Tactile fremitus

across the chest. He had been well until the day prior to admission, when he began to feel "warm and feverish." He developed a headache and became dizzy. Soon afterward he developed the pains across his chest and a nonproductive cough.

Physical Examination.—The temperature was 103 F., the pulse rate 94 per minute and the respiratory rate 20 per minute. The blood pressure was 118/78. The skin was hot and moist. The throat was red and edematous. The nasal mucosa was injected. The neck showed no adenopathy, adenitis nor rigidity. The lungs revealed sonorous breath sounds in the upper portion of the left lung anteriorly and a few coarse rales in both bases. The breath sounds were increased in the left base. The heart was normal, with no enlargement, thrills nor murmurs. All other systems were normal.

Clinical Course.—The temperature ranged from 99 to 103 F. during the first three days of hospitalization. X-ray examination (fig. 2) of the chest (bedside) made on the 2d day of admission showed many small, generalized, soft, fluffy, cotton-like, irregular areas of infiltration, scattered throughout both lung fields, with the apexes relatively free. There was a mild hilar adenopathy. The findings were interpreted as consistent with diffuse bronchopneumonia. On the 3d day the respiratory rate increased to 24 per minute and examination of the lungs revealed crepitant rales in both bases. The patient was placed on sulfathiazole therapy. Blood study showed a white blood cell count of 11,950, a red cell count of 5,000,000, hemoglobin 90 per cent, with a differential count of 2 juvenile forms, 4 stabs,

9. Van Bree, R. S.: Moniliasis: Sulfapyridine Treatment, J. Michigan M. Soc. 40:197 (March) 1941.

81 segmented forms, 11 lymphocytes and 1 eosinophil. On the 6th day the patient developed a maculopapular rash, the cough became more productive, and coarse rales were noted in both bases. The blood count remained essentially the same. Urinalysis was normal. On the 14th day a review of the clinical chart showed that the temperature continued to range between 100 and 102 F. X-ray examination continued to show an increased amount of infiltration in the lungs interpreted as bronchopneumonia. The blood cultures were reported as negative. The leukocyte count was 8,700. The remainder of the blood study and urinalysis were normal. Seven sputum examinations up to this date were reported negative. On the 16th day progress chest plates (fig. 3) showed the process of infiltration to be more extensive, with coalescence of some of the areas of infiltration. There was no increase in the size of the hilar nodes, and the apexes remained practically clear. Since a patient with a miliary tuberculous lesion as extensive as was seen in this plate would be expected to appear much sicker, the findings were interpreted as being consistent with a generalized fungous infection. On this day the patient expectorated a copious amount of sputum, milky in appearance and possessing an odor similar to that of bread or yeast. Smears showed organisms of yeast resembling *Monilia albicans*. The patient showed no signs of toxicity. The sulfathiazole medication was discontinued and the patient was placed on a daily regimen of 10 cc. of sodium iodide (15 grains) given intra-

was negative except for a fibrotic reaction in both lungs. The patient was symptom free, had gained 12 pounds (5.4 Kg.) and was returned to duty. Reexamination (fig. 6) of the chest 175 days after he was discharged from the hospital showed a mild generalized fibrosis throughout both lung fields except for the apexes, which were clear. The man was subsequently transferred from this post, and no further examinations were possible.

COMMENT

As mentioned in the clinical description, the diagnosis of bronchomoniliasis is often confused with bronchitis, bronchopneumonia, bronchiectasis and lung abscess and may often be difficult to differentiate from pulmonary tuberculosis, pneumoconiosis or secondary carcinoma-tosis.

A diagnosis of bronchitis was initially made in this case on the clinical and radiologic findings. The diagnosis of bronchopneumonia was adhered to later, based on the infiltration of the lungs demonstrated radiographically, the physical findings and the clinical course. The suspicion of a mycotic infection was first aroused when the patient expectorated sputum which had a yeastlike odor. The diagnosis was confirmed by laboratory smears, cultures and animal inoculation.



Fig. 4.—Regression of pathologic process on 30th day.



Fig. 5.—Improvement on 43d day.

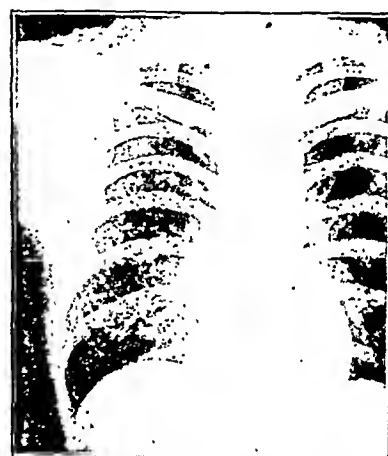


Fig. 6.—Mild generalized fibrosis 175 days after discharge from the hospital.

venously and 10 drops of a saturated solution of potassium iodide by mouth every four hours. On the 17th day sputum examination revealed the presence of organisms resembling *Monilia albicans*. On the 24th day a sputum culture showed yeast cells of *Monilia albicans*. From the 16th to the 31st day of the disease the patient's temperature never exceeded 101 F. On the 31st day he became nauseated and developed a brassy, metallic taste in his mouth. As a result the iodide was reduced in dosage. Further x-ray examination (fig. 4) made on the thirtieth day showed a regression of the pathologic process. The infiltrative lesions were smaller and more discrete, and there was a greater amount of aerated lung tissue. The lesions were beginning to be arranged in strands radiating from the hilar regions toward the periphery. A tuberculin test on the 35th day was negative. Repeated sputum examinations were negative for tubercle bacilli, repeated urinalyses were normal and repeated blood studies showed normal leukocyte, erythrocyte and differential counts. X-ray examination (fig. 5) made on the 43d day showed great improvement over the preceding films. The infiltrative process had almost cleared and was being replaced by fine strands of fibrosis. The hilar adenopathy had receded. On the 64th day the temperature became normal and remained so except for an occasional rise to 99 F. On the 89th day the patient was given a thirty day convalescent furlough. Reexamination on his return revealed a normal pulse, temperature and respiratory rate. Sputum examination was negative. The x-ray examination

SUMMARY

In a case of bronchopulmonary moniliasis the clinical course was in the beginning so mild that a diagnosis of bronchitis was made. Subsequent exacerbation of symptoms and signs, infiltration of the lungs and production of sputum resembling yeast in odor suggested a mycotic infection. The diagnosis was established by laboratory staining methods, cultures and animal inoculations, all of which isolated the fungus, *Monilia albicans*. Radiographically no diagnostic criteria for the diagnosis of bronchopulmonary moniliasis are known. Pulmonary mycoses are to be differentiated from acute pulmonary infections, silicosis, metastatic carcinoma and miliary tuberculosis. The differentiation of these conditions by means of the x-ray examination alone is impossible. Sodium iodide intravenously and potassium iodide by mouth were definitely effective in controlling the disease. The pathologic process in the lungs, as revealed by many films, varied closely with the clinical course. The response to iodides was almost immediately revealed in the x-ray plates. Subsequent x-ray examination 175 days later revealed no evidence of any pulmonary involvement.

EVALUATION OF THE KENNY TREATMENT OF INFANTILE PARALYSIS

REPORT OF COMMITTEE

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The formation of the Committee for Investigation of the Kenny Treatment of Poliomyelitis followed a resolution passed by the Section on Orthopedic Surgery of the American Medical Association on June 11, 1942, as follows:¹

On motion by Dr. Rexford L. Diveley, Kansas City, Mo., it was voted that a committee be formed to study and evaluate the Kenny treatment of infantile paralysis, this committee to be composed of six members, two to be appointed by the chairman of the Orthopedic Section of the American Medical Association, two members to be appointed by the president of the American Academy of Orthopedic Surgeons and two members to be appointed by the president of the American Orthopedic Association, (1) this committee to study and evaluate the Kenny treatment of infantile paralysis, the report to be published either in *THE JOURNAL OF THE AMERICAN ASSOCIATION* or the *Journal of Bone and Joint Surgery*, and the respective members to report to their respective organizations as soon as it is practical and possible.

This committee, in the course of its study, visited a total of six cities and sixteen clinics, some of them being visited two or more times. A total of approximately 740 patients were examined, approximately 650 of whom had been treated by the method advocated by Miss Kenny. Some of these patients represented examples of cases from earlier epidemics, while the majority came from the epidemics occurring since 1940. Early in the investigation questionnaires were sent to over 900 orthopedic surgeons, but no definite conclusions could be drawn from the reports they submitted.

In the examination of these patients we have been cognizant of the fact that epidemics vary tremendously from year to year as to severity, type of paralysis and extent of paralysis. These observations are along the lines emphasized by Wickman² in 1907.

One of the things Miss Kenny has stressed in her writings, talks and newspaper articles is the difference of her treatment from what she calls "orthodox" treatment. It is rather difficult to understand what she means by "orthodox" treatment. In this country several different plans of treatment have been followed in the work with poliomyelitis. One might emphasize the fact that years ago Lovett³ outlined a method of treatment which was followed successfully for many years and is still the basis of most of our modern therapy for poliomyelitis. We quote briefly from articles by Legg⁴ and Lovett:⁵

Sensitiveness of the patient should be relieved as soon as possible in order to start muscle training. I have found that hot wet packs and hot baths given two or three times a day for fifteen minutes help best to shorten this stage. Dry heat may be applied, but it is my experience that moist heat is more effective.

Muscle training forms the basis for the modern treatment of poliomyelitis. In theory it consists of an attempt to make the patient send a voluntary impulse to contract a muscle.

Braces should not be used unnecessarily, but they should be used when needed; they are not in any way therapeutic but protective and conservative.

For many years the use of pools has been a prominent phase of the treatment of poliomyelitis. Most of the cases in this country have been treated along the lines advocated by Lovett⁶ in 1917.

THE KENNY CONCEPT

Miss Kenny states that her concept of the disease was conceived in the Australian bush over thirty years ago. There has apparently been considerable change in this concept with the passing years. In a book published by Miss Kenny⁶ in 1937 there is no mention of "muscle spasm," "mental alienation," "incoordination" or the use of hot wet packs for treatment. She explains this in her preface to the book published by Pohl and Kenny⁷ in 1943 as follows: "I was advised by a medical man that to publish these was an unwise procedure. . . . As a matter of fact, I was informed that my liberty would be endangered as a result of such a statement."

During the course given at the University of Minnesota for this committee, Miss Kenny was asked why no mention was made of muscle spasm in her first book. She answered "Dr. Guinane wrote that book for me."

The Kenny concept has been described by Pohl⁷ as follows:

This then is the real contribution of Miss Kenny, not a new treatment for the disease of infantile paralysis as it has been conceived in the past but a conception of the disease itself so radically opposed to the old as to almost warrant considering the entity as a new disease. The basic principles of the disease built upon the observations of the behavior of the musculature following an attack of the disease may be stated as follows:

1. The affected muscles are painful, hyperirritable and in spasm.

2. The flaccid muscles are normal. Loss of ability to contract these is due to functional dissociation (alienation) from the nervous system.

3. Lovett, R. W.: *The Treatment of Infantile Paralysis*, Philadelphia, Blakiston Son & Co., 1917.

4. Legg, A. T.: *The Early Treatment of Poliomyelitis and the Importance of Physical Therapy*, J. A. M. A. 107:633 (Aug. 29) 1936.

5. Lovett, R. W.: *The Diagnosis, Prognosis and Early Treatment of Poliomyelitis*, J. A. M. A. 78:1607 (May 27) 1922; *The After-Care of Infantile Paralysis*, ibid. 68:1018 (April 7) 1917.

6. Kenny, Elizabeth: *Infantile Paralysis and Cerebral Diplegia*, Sydney, Australia, Angus & Robertson, Limited, 1937.

7. Pohl, John F., and Kenny, Elizabeth: *The Kenny Concept of Infantile Paralysis and Its Treatment*, Minneapolis, Bruce Publishing Company, 1943.

Read before the Section on Orthopedic Surgery at the Ninety-Fourth Annual Session of the American Medical Association, Chicago, June 15, 1944.

1. The Minutes of the Section on Orthopedic Surgery, J. A. M. A. 119:816 (July 4) 1942.

2. Wickman, I.: *Beiträge zur Kenntnis der Heine-Medinschen Krankheit*. Berlin, Kargle, 1907.

3. Ability to voluntarily contract the nonfunctioning muscles returns only after releasing spasm in the opponents and carefully restoring the physiological continuity of the nerve conduction paths back to the muscles.

4. Paralysis due to nerve cell death occurs but is not a common condition. Most supposed weakness is due to untreated spasm and to disuse in the dissociated muscles.

5. Incoordination of muscle action appears in the untreated case.

6. Deformities do not occur. Those resulting from the old methods were due to untreated muscle spasm.

In short, Miss Kenny's discovery is that infantile paralysis is a disease in which a disturbance of physiologic function of the nervous system is of more importance than actual architectural change. Many of the observable clinical phenomena are the result of functional disorganization of the motor centers and of the nerve pathways to the muscles. The disease affects muscle as well as nerve tissue. Muscle spasm is the primary lesion in the disease rather than paralysis. Miss Kenny has designed a treatment for these conditions. Needless to say, the treatment could have nothing in common with the previous methods, designed for a disease of opposite conception.

The four major points in her concept of the disease have been stressed by Miss Kenny as follows:

1. *Muscle "Spasm."*—Pohl states that this is the primary lesion in the disease and it is claimed to be mainly responsible for the crippling after-effects.⁷ This committee believes that while this does exist in the early phases of the disease it usually disappears spontaneously. There may be residual "spasm" which can lead to deformity, but it is by no means the cause of the residual paralysis. While this has been emphasized by Miss Kenny it is not a new discovery, as stiffness, muscle tenderness and early contractures have been long recognized and considered an integral part of the acute phase of this disease.⁸

2. *Mental Alienation.*—Quoting Pohl again, "The flaccid muscles are normal. Loss of ability to contract these is due to functional dissociation (alienation) from the nervous system."⁷

The statement that the flaccid muscles are normal is obviously not true. There are instances in which a functional loss of use may result from pain, and in these instances function is restored as the pain subsides. Functional disuse may also result from stretch in any muscle opposed by muscles in varying degrees of contracture. Mental alienation has been covered in the past by the terms temporary paralysis, stretch paralysis and physiologic dissociation, and these would seem a more satisfactory scientific explanation than simple "functional dissociation from the nervous system." It is thus evident that this condition which they term "mental alienation" is not a new discovery, having been well described in 1911 by Robert Jones.⁹

3. *Incoordination.*—Pohl states: "Incoordination of muscle action appears in the untreated cases."⁷ It is our impression that this is merely another term for the condition of muscle substitution or mass muscle action of an extremity, long recognized by orthopedic surgeons. As a matter of fact the term "muscle incoordination" was used by Wilbur¹⁰ to describe this condition in poliomyelitis as early as 1912. This question is of academic interest and of relatively little importance.

4. *Paralysis* (denervation now preferred by Miss Kenny).—Pohl states: "Paralysis due to nerve cell death occurs but is not a common condition. Most supposed weakness is due to untreated spasm and to disuse in the dissociated muscles."⁷

It is our belief that if deformities are prevented the flaccid paralysis caused by destruction of nerve cells is the most important cause of crippling.

TREATMENT

In the latest textbook by Pohl and Kenny⁷ we find the following:

While the main object of treatment in the acute stage is that of the relief of muscle spasm by means of the application of hot fomentations, yet the attempt to restore the physiological continuity of the nerve pathways back to the muscles must engage the attention at the earliest possible moment.

From our observations the Kenny treatment may be said to consist of the following:

1. Active treatment, including muscle reeducation, is begun as early as possible.

2. The patient is maintained in the normal standing position in bed.

3. "Spasm" and pain are treated by the use of hot fomentations. These are applied and reapplied continuously for about twelve hours per day according to a rigid technic. These are continued until "spasm" is relieved.

4. The extremities are carried through as wide a range of movement as can be tolerated several times each day.

5. Muscle reeducation is begun as early as possible. This is directed toward (a) "the restoration of mental awareness of muscles," (b) "restoration of coordination or combating of incoordination" and (c) "restoration of muscle function."

6. No splints or braces are tolerated.

7. The respirator should not be used on any patient.

8. Patients and their families are encouraged to believe that complete recovery will ensue or, in the event of residual paralysis, that the Kenny treatment was not instituted early enough or had been improperly administered.

9. All improvement is attributed to the treatment, and no spontaneous recovery or improvement is recognized.

10. Balneotherapy is an important adjunct to the foregoing procedures.

From personal observations of this committee during the past two years, each of these ten points can be analyzed and discussed as follows:

1. The institution of treatment directed toward the involved muscles as early as possible is desirable, but the general condition of the patient during the acute febrile stage may be such that the handling necessitated by the Kenny treatment can be detrimental. In other words, therapy during the acute febrile stage is primarily a medical problem.

2. Proper positioning in bed by one means or another has been a standard practice among physicians for over thirty years to our knowledge.¹¹ It is still a recommended procedure.

3. Heat in some form, including hot fomentations, has been used by physicians for many years to combat pain in

8. Peabody, F. W.; Draper, George, and Dochez, A. R.: *A Clinical Study of Acute Poliomyelitis*, Monograph 4, Rockefeller Institute for Medical Research, New York, 1912. Wilbur.¹⁰

9. Jones, Robert: *Certain Operative Procedures in the Paralysis of Children*, Brit. M. J., Dec. 9, 1911. Jones and Lovell.¹²

10. Wilbur, Ray Lyman: *Early Diagnosis of Epidemic Poliomyelitis*, California State J. Med. 10: 418, 1912.

11. Lovett, R. W.: *Principles of the Treatment of Infantile Paralysis*, J. A. M. A. 62: 251 (Jan. 24) 1914.

infantile paralysis. In most instances the pain can be relieved by the use of hot fomentations. We have seen a few cases, however, in which relief was not afforded by their use. It is the impression of this committee that pain is not an important feature of the disease in most instances and, when present, can be relieved also by other measures. Recovery from "spasm" in most instances takes place spontaneously. Hot packs may relieve this "spasm," but so will adequate rest. Therapy directed at pain and "spasm" should be discontinued as soon as these symptoms subside. We have seen instances in which hot packs seem to increase and prolong the "spasm." In some, "spasm" was relieved after the packs were discontinued. In others, "spasm" which had been relieved recurred when the packs were discontinued and was again relieved by their reapplication. The use of hot fomentations therefore cannot be considered as a panacea in this disease and their use must be guided by good medical judgment. The rigid technic insisted on by Miss Kenny in the application of these packs is neither important nor essential.

4. So long as active and passive movement of these extremities is carried out within the range of comfort, this point is acceptable. This procedure has been recommended by many physicians in the past, but again we stress the point that this movement should not be forced beyond the point of pain.

5. Jones and Lovett¹² described and used a method of muscle reeducation which in principle is similar to the method taught by Miss Kenny. This has served as the basis for orthopedic treatment for many years.

6. Cases have been seen under Kenny treatment in which early contractures were developing, and by application of plaster splints these contractures were controlled after their correction. This committee believes that splints are beneficial for some patients.

Braces should form an important part of the treatment during the later stages of this disease. We have seen Kenny treated patients walking with two English style crutches who could be so benefited by braces that the crutches could be discarded, thus liberating the hands for other use.

7. Respirators have saved many lives and should be used for patients with sufficient paralysis to embarrass respirations.

8. There is no evidence that the Kenny treatment prevents or decreases the amount of paralysis. We criticize severely the oft repeated statement of Miss Kenny to patients who have come to her after treatment elsewhere that had this case come to her early the disability would have been prevented. Such statements are not founded on facts.

9. Spontaneous recovery in poliomyelitis occurs in many cases. Reports in the medical literature indicate that this varies in different epidemics from 50 to 80 per cent. We have seen many patients receiving Kenny treatment who showed no muscle involvement at any time, yet she assumes the credit for their satisfactory results and does not take into account the factor of spontaneous recovery.

10. Pools and baths have long been used in the treatment of poliomyelitis.

COMMENT

1. Miss Kenny's objection to muscle examinations and hence the lack of accurate records is to be condemned. If this should be followed by all clinics no reasonably accurate statistics would be available nor could the results from any type of treatment be determined. We do not feel that muscle examinations, if carefully and judiciously conducted, are of harm to the patient. We found no one in our visits to various clinics, other than Miss Kenny, who felt that careful muscle examinations were detrimental.

2. Miss Kenny has repeatedly stated that under "orthodox" treatment only 13 per cent of the patients recovered without paralysis,¹³ while under her treatment over 80 per cent recover. We believe that this is a deliberate misrepresentation of the facts of treatment by other methods. This we attribute to her overzealous desire to promote further the adoption of the Kenny treatment. Miss Kenny's statement of 80 per cent recovery under her treatment has not been supported by accurate statistics in a significant number of cases. The figure on "orthodox" treatment is taken from an article which dealt entirely with severely paralyzed patients. Miss Kenny has been told repeatedly that this is not a fair comparison to make and that, if every case in an epidemic is included in the statistics, recovery of from 70 to 90 per cent can be expected from "orthodox" treatment.¹⁴ Miss Kenny made this inaccurate comparison as late as May 1944.

3. Some of the people using the Kenny treatment believe that paralysis can be prevented when treatment is started early enough; that is, prior to the onset of paralysis. We have seen enough cases, however, in which the Kenny treatment was instituted very early to be convinced that this does not prevent or even minimize the degree of permanent paralysis.

4. In several cases seen by us the paralysis progressed after the Kenny treatment was instituted.

5. The amount of residual paralysis in any case is dependent on the amount of destruction in the central nervous system if deformities are prevented, and this varies tremendously in different epidemics.

6. There may be some local changes in isolated muscles during the acute stage the nature of which must be studied further. This change, if present, may be primary in the muscles themselves or may be secondary to changes in the central nervous system. As was emphasized by Lovett, contractures may develop early and, if not prevented or corrected during the early stages, may cause crippling and be resistant to treatment. It must be emphasized that the prevention of these contractures is the primary means by which medical care is able to minimize the effects of the disease.

7. In the opinion of the committee, after observation of 740 cases, particularly those during the epidemic of 1943, the continuous hot packs for all patients with minimal evidence of "spasm" is of questionable value and an unnecessary waste of manpower and hospital beds. Several clinics were using prone packs with good effect. The simplicity of their application requires much less manipulation of the patient. Once again we

13. McCarroll, H. R., and Crego, C. H.: An Evaluation of Physiotherapy in the Early Treatment of Poliomyelitis, *J. Bone & Joint Surg.* 23: 851, 1941.

14. Harmon, P. H.: Poliomyelitis, *Am. J. Dis. Child.* 47: 1179 (June) 1934. Sherman, Mary S.: The Natural Course of Poliomyelitis, *J. A. M. A.* 125: 99 (May 13) 1944.

12. Jones, Robert, and Lovett, R. W.: *Orthopedic Surgery*, ed 2, New York, William Wood & Co., 1929.

emphasize the fact that good medical judgment should be exercised in determining the cases in which hospital treatment should be instituted or continued.

8. Miss Kenny has laid claim recently to a new and revolutionary discovery by means of which she can diagnose the disease and determine the involved extremities prior to the onset of the usually recognized diagnostic clinical signs. She also claims that the institution of her treatment at this time will control the pain and prevent paralysis. She has stated that this is her greatest single contribution.

The preparalytic diagnosis of poliomyelitis has been described by Draper¹⁵ and by Aycock and Luther.¹⁶ There has been no satisfactory evidence presented to this committee that the institution of early local treatment will alter the course or the extent of the paralysis in any case.

9. Many of those who have used the Kenny method of treatment have repeatedly stated that all paralytic scoliosis can be prevented by this program of care. Among the patients studied by this committee from the last three epidemics, no severe scolioses and only a few slight curvatures of the spine have been noted. However, severe paralytic scoliosis occurs only in growing children and is uncommon within less than three years after the onset of the disease. Several more years must elapse before any final conclusions can be reached with regard to the amelioration or prevention of paralytic scoliosis by means of the Kenny treatment.

10. While the committee disapproves of and condemns the wide publicity which has misled the public and many members of the medical profession, it acknowledges that this has stimulated the medical profession to reevaluate known methods of treatment of this disease and to treat it more effectively.

11. During this investigation the committee has received the greatest courtesy and cooperation from the various clinics it has visited. We take this opportunity to express our sincere thanks to these people who have expended much time and effort in the presentation of their cases. We believe that these various clinics have made a sincere effort to carry out the treatment in the most effective way.

15. Draper, George: Significant Problems in Acute Anterior Poliomyelitis, *J. A. M. A.* 97: 1139 (Oct. 17) 1931.

16. Aycock, W. L., and Luther, E. H.: Preparalytic Poliomyelitis, *J. A. M. A.* 91: 387 (Aug. 11) 1928.

Influenza.—Nearly one death in ten, in the United States, is due to an acute infection of the lungs or air passages—*influenza*, *pneumonia*, “*pleurisy*” or *bronchitis*. One would have to wipe out the whole population of Albany or Chattanooga to duplicate the yearly loss officially debited to these diseases. Add *tuberculosis* (now far outdistanced by *pneumonia*) to the group and one has accounted for two thirds of all the deaths that can be clearly attributed to infectious causes. Americans, moreover, have some four hundred million colds a year. Great and small, the respiratory infections are indubitably unfinished business. These common ailments form a nosological jungle in which bacteria and viruses roam at will, despoiling the human race and defying both classification and control. Symptoms overlap, and no one knows how many different diseases lurk behind them. For some of them the doctor can do little. The epidemiologist who hacks his way into this mess courts frustration. The statistician has to content himself with omnibus calculations. The plain citizen talks glibly of grip or flu, gulps or sniffs his favorite panacea and, without any clear notion of what is happening to him, hopes for the best.—Smith, Geddes: *Plague on Us*, New York, Commonwealth Fund, 1941.

INHALATION THERAPY AT THE RHODE ISLAND HOSPITAL

A TEN YEAR PROGRESS NOTE

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AND

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The deleterious effects of hypoxia are too well known to physiologists, clinicians and flight surgeons to require emphasis, and the efficacy of the inhalation of air rich in oxygen to overcome hypoxia and prevent or correct its harmful action is equally well known. The use of oxygen therapy in the treatment of conditions in which hypoxia may be an important factor has become routine in clinical practice. A great deal has been written on the subject, and a number of efficient methods for the administration of gases have been developed and generally adopted. Two facts, however, in connection with the use of these methods are so important that they deserve to be emphasized repeatedly. They are that: (1) the application of an adequate method to the patient in need of oxygen is no proof that he is receiving oxygen sufficient for his needs and (2) the correct application of an adequate method with evidence that the patient is receiving oxygen sufficient for his needs is no guaranty that he will continue to do so as long as the method continues to be used. In other words oxygen must be applied with definite tests of the method in every instance, and continued checks of the efficacy of the treatment must be carried out at regular intervals throughout its application. No therapy can be more wasteful and useless than oxygen therapy not properly applied. Under such conditions not only do the patients suffer, but the confidence of the clinician in the value of the treatment is greatly undermined, to say nothing of the futile expenditure of funds.

Experience both in our own and in other hospitals has convinced us that there has been a great lack of proper interest in this field of therapeutics with a resultant failure to bring relief to many patients who could have been relieved, and a consequent distrust of this type of therapy on the part of the clinical staff. We believe that in many hospitals where poor technic in procedures such as transfusions and lumbar puncture would be unthinkable, oxygen therapy is so badly applied that the result, preventable damage and death, is as definitely due to bad technic as if it had resulted from the transfusion of incompatible blood or the infection of the spinal fluid. At the present time the problem in most hospitals is not that of the acquiring of apparatus and of understanding of its use but of maintenance and repair, careful application and constant testing and accurate recording of results. In our judgment the chief reason why the routine clinical use of oxygen is so often a failure in hospital practice is that there is no one on the clinical staff who is sufficiently interested in the work. This, we believe, justifies the description of the study and application of inhalation therapy at the Rhode Island Hospital during the past decade and the organization developed to insure its efficient use.

In 1932 oxygen therapy was well established as a method of relieving hypoxia in cardiac and pulmonary cases. Many hospitals, including our own, owned and operated one or more oxygen tents. These tents were

cumbersome and relatively inefficient. Testing of the oxygen content of the air in the tent was not properly carried out. The apparatus was frequently out of repair, often because of deterioration or tearing of the canopies of rubberized cloth, so that on the whole the method left a great deal to be desired. The nasal catheter was used with occasionally fairly good results, but the technic was not well understood. Face masks were employed for short periods under emergency conditions but were quite unsatisfactory for continued treatment. A fourth method, the use of the open cone, recommended by Dr. Albert H. Miller, by which oxygen was delivered into an open towel cone held firmly on a patient's face also gave good results at times, but it was open to the same objections that applied to mask technic.

In this last mentioned method, the use of the open cone, lay the principle on which the open box technic was developed and first described in 1932.¹ It involved replacing the cone by a box large enough to take in the

the apparatus has been used suspended from a bedside stand which makes its application much easier for adults, especially for those who have to be kept in a sitting or somewhat raised position in bed (fig. 1). With this apparatus it has been found possible without difficulty to give adult patients 45 to 60 per cent oxygen in a satisfactory manner. While for adults the method has not by any means been the best for all conditions, it has been useful in a rather large percentage of the cases. For infants and children it has, in our hands, been always the method of choice. Like every other method of giving oxygen, it requires care in its application and repeated checks while in use.

Up to 1938, when the mask perfected by Drs. Boothby, Lovelace and Bulbulian² was introduced, oxygen therapy at the Rhode Island Hospital was carried on in almost all cases by two methods, oropharyngeal insufflation by nasal catheter (as described by Wineland and Waters³) and the open box. In adults the catheter was used for those whose oxygen need was not too great or who did not tolerate the box, while in children, as just noted, the box method was, and has remained, the only method employed. The B. L. B. mask was a distinct addition to our armamentarium. Later the O. E. M.⁴ mask, devised by Dr. A. L. Barach, was adopted and has completely replaced the B. L. B. in our wards. Both masks are open to those obvious objections that must apply to all masks, namely, that sick and nervous patients at times will not tolerate them. We have found them particularly useful when it is desirable to give a high percentage of oxygen without delay. However, in attempting to use a 95 per cent concentration in order to remove nitrogen trapped in the distended intestine or tissue spaces as advocated by Fine and his associates⁵ we have found it difficult to achieve the high concentration needed. A method of fitting a cover over the open box and using soda lime to absorb carbon dioxide has been described by one of us⁶ and we have recently described an improvement in this closed box technic.⁷

As was previously emphasized, however, the possession of adequate apparatus and a knowledge of how to apply it is by no means the whole story in hospital practice. Careful upkeep, repair and replacement of apparatus is a necessity, as is a constant check on its efficiency while in use. While, on the whole, during the years between 1936 and 1941 results seemed to be fairly good, a careful study of the situation showed that there was much indeed to be desired. Great credit should go to the orderly personnel (Mr. J. M. Sears and later Mr. Arthur Battey), who not only kept all apparatus in good condition, with replacement of parts and the construction of new boxes of the hanging type, but also showed great efficiency and promptness in the application of the apparatus under emergency condi-



Fig. 1.—Apparatus suspended from bedside stand.

patient's head with the oxygen entering rapidly enough so that in spite of free diffusion upward a good concentration of oxygen could be maintained at the level of the patient's nose. It was found that a properly constructed ice container in the box would control both temperature and humidity. These boxes were first used in the treatment of children, and for small babies it was customary to construct the box so that the entire infant could be placed within it. The wooden boxes were later replaced by frames covered with rubberized cloth with windows of cellulose acetate, and still later clear transparent canopies of "pliofilm" or similar material were introduced. Although a few manufacturers began making the apparatus commercially, those used at the Rhode Island Hospital have practically all been made at a relatively low cost in the hospital shops (with the coolers made by a local tinsmith and the pliofilm canopies purchased in quantity and at a low cost from a dealer who has made several modifications at our suggestion). For the last five or six years

1. Burgess, A. M.; Briggs, A. S., and Burgess, A. M., Jr.: Oxygen Therapy by the Open Box Method, *New England J. Med.* **210**: 254, 1934.

2. Boothby, W. M.: Oxygen Administration: Value of High Concentration of Oxygen for Therapy, *Proc. Staff Meet., Mayo Clin.* **13**: 641-646, 1938. Lovelace, W. R., Jr.: Oxygen for Therapy and Aviation: Apparatus for Administration of Oxygen or Oxygen and Helium by Inhalation, *ibid.* **13**: 646-654, 1938. Bulbulian, A. H.: Design and Construction of Masks for Oxygen Inhalation Apparatus, *ibid.* **13**: 654-656, 1938.

3. Wineland, A. J., and Waters, R. M.: Oxygen Therapy: Insufflation into Oral Pharynx, *Arch. Surg.* **22**: 67-71 (Jan.) 1931.

4. Oxygen Equipment Manufacturing.

5. Fine, J.; Sears, J. B., and Banks, B. M.: Effect of Oxygen Inhalation on Gaseous Distention of Stomach and Small Intestine, *Am. J. Digest. Dis. & Nutrition* **2**: 361-367, 1935.

6. Burgess, A. M.: Oxygen Therapy: A Modification of the Box Method for Giving 95 per Cent Oxygen, *New England J. Med.* **216**: 467, 1937.

7. Saklad, M., and Burgess, A. M.: A New Apparatus for the Administration of 95 per Cent Oxygen, to be published.

tions. It proved, however, to be quite impossible for these men and their assistants to go about and make the repeated tests needed while oxygen was actually being given, tests which are necessary to make certain that the patient is getting what he is supposed to be receiving. An attempt to do this and to keep accurate records of treatment did not succeed. Under war conditions matters became much worse and it was decided that something must be done.

The solution of the problem appeared to depend on the organization of a definite department of inhalation therapy which would be at all times responsible for satisfactory oxygen administration. Such a department should (1) train and supervise the required personnel, (2) order equipment and keep it in repair, (3) supervise the actual application of oxygen and other gas therapy throughout the hospital and (4) keep records on appropriate forms and from such records compile and evaluate statistics.

The organization of this work was assigned to the anesthetist, and the department of inhalation therapy was made a division of the department of anesthesia. This was done because problems of inhalation therapy fall naturally within the scope of the anesthetist's work. His knowledge of normal and altered respiratory physiology is essential. Furthermore, he is familiar with the handling of gases under pressure and knows the problems and hazards peculiar to their care and storage. He is also acquainted with problems of apparatus, piping, reducing valves and other technical aspects of apparatus for administration. Furthermore, in the training of personnel in anesthesia the anesthetist has at his disposal individuals who are already specially prepared for the application of inhalation therapy, and this work is a normal and valuable addition to their training.

At the Rhode Island Hospital, nurses in the department of anesthesia act as supervisors of inhalation therapy throughout the hospital. It is their duty, when the request form for inhalation therapy is received, to supervise not only the application of the equipment to the patient but also its continued use. For this purpose the nurse inspects the apparatus at stated intervals and tests its efficiency and keeps a record of the case on a form provided for the purpose. The result of this careful supervision of apparatus in use has been not only a great improvement in efficiency and economy but also the creation of a real understanding and interest on the part of nurses, supervisors and medical personnel. Thus there is added to the duties of the members of the department of inhalation therapy a real teaching function. Thus far the results of this arrangement have been highly satisfactory.

The department of inhalation therapy has added certain methods to those already in use at the time of its organization. At the present time the following are in use:

1. Oropharyngeal insufflation.
2. Open box (or open top "tent").
3. Closed box (or closed top "tent").
4. Masks.
5. Positive pressure methods by (a) mask and (b) machine.
6. Carbon dioxide absorption methods by (a) mask and (b) machine.

The indications for inhalation therapy are fairly well understood and will not be discussed here. In the relief of hypoxia lies by far its greatest usefulness. This

applies to atmospheric, alveolar, tidal and demand hypoxia.⁸ In hypoxia of the stagnant, hemoglobic and histotoxic types the value of increasing the percentage of oxygen in the inspired atmosphere is questionable.

The use of nitrogen free atmosphere (95 to 100 per cent oxygen is the most easily obtainable) in the removal of nitrogen trapped in body spaces or dissolved in tissue fluids has already been referred to. A final judgment as to the value of the more easily respirable helium-oxygen mixtures in cases of partial respiratory obstructions, as in bronchial asthma, is still to be made. The same may be said of the application of oxygen under positive pressure. It is hoped that with the use of the equipment and methods to be described, more light may be thrown on these questions.

EQUIPMENT

For oropharyngeal insufflation we prefer the Emerson bottle. By this means satisfactory humidification is obtained, which is very desirable in this form of therapy.

For the open box technic the apparatus described and illustrated in figure 1 is in use. For closed box technic the same apparatus is employed, fitted with a pliofilm cover and soda lime container.

In the use of masks we prefer the O. E. M. to the B. L. B. The former has two main advantages: (1) because there is no opportunity for carbon dioxide accumulation or rebreathing and (2) because the injector valve principle has proved itself of great value in regulating the percentage of oxygen applied. It should be stated, however, that with the ordinary reducing valve a sufficiently great volume is not delivered from the tank to obtain the highest concentrations credited to this apparatus.

In using positive pressure we use one of two pieces of equipment (both O. E. M. products). In one the patient exhales through a choked orifice of various diameters and in the other he exhales against the resistance of a column of water, the height of which may be altered. We prefer the latter type, although we keep both available. It is our belief that positive pressure inhalation is most efficiently effected by exhaling against a valve controlled by a series of weights and is best exemplified in a Connell gas machine. This is primarily an apparatus for the administration of anesthetics, but it is also an almost ideal piece of equipment for a number of different methods of inhalation therapy.

Carbon dioxide absorption is especially valuable in dealing with helium-oxygen mixtures since it allows a great deal of rebreathing without carbon dioxide accumulation, thus keeping the cost of the gases down. We have employed a modern gas machine for the administration of helium-oxygen mixtures rather than special apparatus designed for this purpose for two reasons: (1) The gas machine seems to be as efficient as the special apparatus, and (2) we are not as yet certain of the role that helium-oxygen is to play in inhalation therapy. Carbon dioxide accumulation certainly is an undesirable phenomenon both in anesthesia and in inhalation therapy. To obviate this we have constructed a circuit absorption system for use in the closed box apparatus for the administration of 95 per cent oxygen.⁷

8. Saklad, M.; Saklad, E., and Sellman, P.: *Inhalation Therapy*. Rhode Island M. J. 26: 65, 1943.

appeared to show the usual "three day fever" which is considered characteristic of the disease among patients without complications. In general, the clinical course and severity of symptoms was the same in the infants and younger children as in the older children. Attention is directed to the temperature curves of 12 patients, selected to show the various types of febrile response at different ages, as illustrated in chart 2. Biphasic curves were observed at all ages in this study of infants and children. This feature was noted only rarely in a study of an epidemic of influenza among young adults which was carried on at the same time and which was caused by the same type of virus.⁸ Brightman and Trask⁶ refer to the "familiar syndrome

tion and acute pharyngitis were the main physical findings. One patient had a severe epistaxis, and swabbing of the throat initiated some mild bleeding in a few patients. The hyperemia of the pharyngeal spaces stood out as a cardinal finding. This was accompanied by mild laryngeal symptoms and cough in some of the younger patients, not unlike the characteristic brassy cough associated with measles.

The complications were surprisingly mild in spite of the fact that the throat cultures revealed hemolytic streptococci in 7 children. There were 6 patients from whom nonhemolytic streptococci were isolated in the throat culture. Two patients developed otitis media. None of the patients developed pneumonia, although S. H., aged 18 months, on Dec. 15, 1943 showed a moderate increase in bronchovascular markings in a roentgenogram of the lungs, interpreted as acute bronchitis. Diarrhea was not observed.

LABORATORY FINDINGS

Serum specimens were examined for neutralizing antibodies to influenza A and B viruses by the red blood cell agglutination inhibition test.⁵ Serial twofold dilutions of serum in isotonic solution of sodium chloride were mixed with four minimal agglutinating doses of influenza virus in 0.5 cc. amounts of the virus dilution in isotonic solution of sodium chloride. To the serum-virus mixtures were added 1 cc. amounts of a 1.5 per cent suspension of adult chicken red blood cells in isotonic solution of sodium chloride. At the end of seventy-five minutes the end points of the serum titrations were determined by use of the photodensitometer.¹² The end point of the titration was taken as the serum dilution in which 50 per cent of the cells had sedimented. In case this did not occur in any given serum dilution, the end point was determined by interpolation of the dilution above and the dilution below 50 per cent red cell sedimentation. In all instances the acute and convalescent phase serums from the same patient were examined in the same test.

The serums were tested against the PR8 strain¹³ of influenza A virus which had undergone 250 passages in mice followed by 30 intra-allantoic passages in chick embryos and against the Lee¹⁴ strain of influenza B virus, which had been received from the International Health Division Laboratories and had undergone six subsequent intra-allantoic passages in chick embryos. The red blood cell agglutination titer of each virus was determined previous to the use of the virus in the test. One cc. quantities of serial twofold dilutions of the virus were mixed with equal quantities of a 1.5 per cent chicken red blood cell suspension in isotonic solution of sodium chloride. The end points of the virus titrations were determined in the same manner as the serum titrations.

Throat washings were obtained from 19 of the 24 patients at the time at which acute phase serum specimens were taken. All washings were obtained during the febrile course of the disease, and the majority were taken within twenty-four hours of onset of illness. A small amount of isotonic solution of sodium chloride was instilled into the patient's nostrils and was recovered together with mucus from the nasopharynx by means of a soft rubber ear syringe. The washings were placed in unbreakable lusteroid tubes, were frozen on solidified

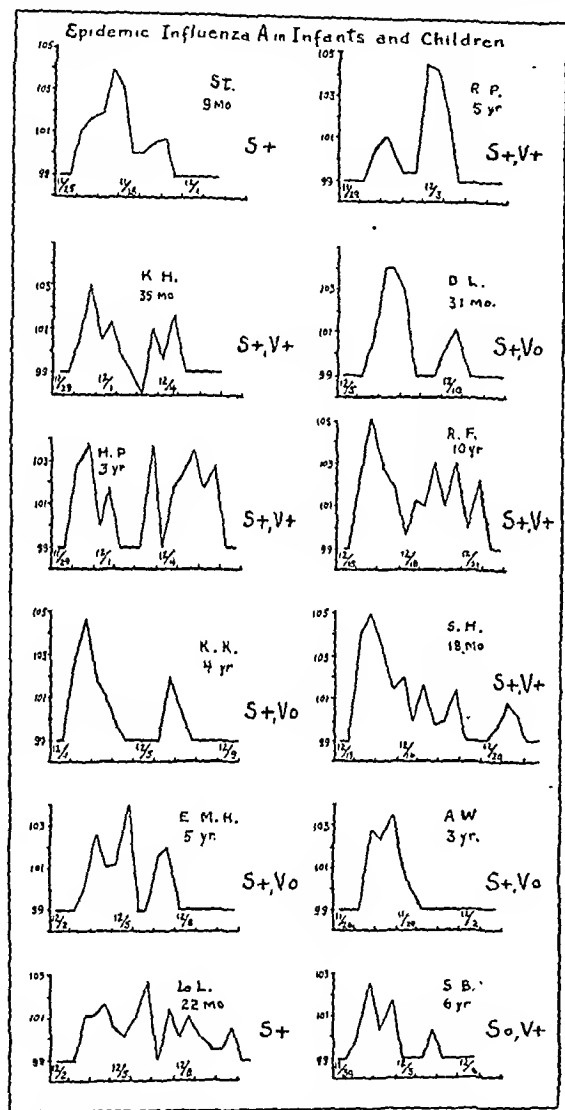


Chart 2.—Temperature curves of 12 patients with influenza, showing the various types of response. Temperatures were all taken rectally. S+, positive serologic findings; SO, negative serologic findings; V+, positive virus isolation; VO, negative virus isolation.

of high, irregular or biphasic fever, lassitude and prostration. . . . They state that leukopenia by no means separates influenza from other diseases involving the respiratory system. The white blood cell counts in our cases rarely showed leukopenia early, with the exception of 1 case. The average of the early counts was 9,047 cells per cubic millimeter, and the counts later, usually after defervescence, gave an average of 7,887 cells. We were not able to confirm the current opinion that leukopenia is a characteristic of influenza.

The infants and children had few subjective complaints. Some of the older children complained of sore throat and headache. Lassitude was rather striking in both groups, while restlessness predominated with the infants. Flushing, cough, mild conjunctival injec-

12. Hirst, G. K., and Pickels, D. G.: A Method for the Titration of Influenza Hemagglutinins and Influenza Antibodies with the Aid of the Photoelectric Densitometer, *J. Immunol.* 45: 273, 1940.

13. Francis, T., Jr.: Transmission of Influenza by a Filtrable Virus, *Science* 80: 457, 1934.

14. Francis, T., Jr.: A New Type of Virus from Epidemic Influenza, *Science* 92: 405, 1940.

carbon dioxide without delay and were so kept until examined.

Each washing was inoculated in the unfiltered state intra-allantoically into six eleven day chick embryos according to the technic described in another publication.⁴ After forty-eight hours' incubation at 37 C. the allantoic fluids of living embryos were tested for agglutination of chicken red blood cells. If such agglutination was not observed, the fluids were pooled and subsequent passage made to six other eleven day embryos, which were incubated and tested in an identical manner. A minimum of five serial passages was performed with all throat washings examined before considering them negative.

When agglutination was observed, the positive allantoic fluids were pooled and the agglutinating titer of the pool was determined in the manner previously described. If this titer was of low order, an additional passage was made in chick embryos, which passage

virus. This agent was therefore considered to be excluded as the cause of illness of any of the patients.

It may be observed that of 23 pairs of serum specimens examined, 18, or 78 per cent, of the specimens showed fourfold or greater increases in antibodies to influenza A virus in the convalescent phase serums. In 19 throat washings examined for the presence of virus, 7, or 37 per cent, yielded a virus which was identified as influenza A by neutralization with the aforementioned known human antisera. These percentages were very similar to those obtained for positive serologic diagnoses and virus isolation among a much larger series of specimens taken from the adult population during the same epidemic.⁵

In the serum of S. B., from whose throat influenza virus A was isolated and identified, no increase in antibodies was noted. Rather there appeared a drop in titer, which was verified by repeating the examination of this patient's serum several times and by determining

Serologic Response and Virus Isolation and Identification Among Infants and Children Ill with Clinical Influenza

Patient	Age	Serologic Response Influenza A				Virus Isolation and Identification			
		Titers Acute Phase Serums	Titers Convalescent Serums	Times Increase Over Acute Titer	Serologic Diagnosis Influenza A	Egg Passage in Which Agglutination Was First Observed	Titers with Human Serum Pools	Convalescent Phase Influenza A	Identification Influenza A
J. R.	1 mo.	1:20	1:11	0	—	Negative			
G.	5 mos.	1:16	1:16	0	—	Negative			
St.	9 mos.	1:52	1:588	11	+	Negative			
M. S.	10 mos.	1:10	1:8	0	—	Negative			
K. S.	12 mos.	1:26	1:1,270	49	+				
D. L.	31 mos.	1:60	1:4,606	68	+	Negative First	1:205	1:3,670	+
S. H.	18 mos.	1:49	1:3,648	41	+				
L. L.	22 mos.	1:79	1:676	9	+				
P.	22 mos.	<1:32	1:3,330	>160	+	Negative			
I. V.	33 mos.	....	....	..	..	Negative			
K. H.	35 mos.	1:84	1:1,270	15	+	Negative	1:123	1:835	+
K. K.	3 yrs.	1:128	1:779	6	+	Negative			
B. K.	3 yrs.	1:64	1:339	5	+				
H. P.	3 yrs.	1:120	1:1,450	12	+	Fourth	1:60	1:512	+
A. W.	3 yrs.	1:74	1:2,018	28	+	Negative			
M. J.	4 yrs.	1:128	1:1,270	10	+	Second	1:215	1:3,520	+
R. P.	5 yrs.	1:204	1:1,175	4	+	Third	1:256	1:1,910	+
E. H.	5 yrs.	1:194	1:6,320	32	+	Negative			
S. B.	6 yrs.	1:417	1:112	0	—	Third	1:32	1:722	+
J. E.	7 yrs.	1:722	1:779	0	—	Negative			
A. H.	7 yrs.	1:223	1:26,600	120	+	Negative			
G. M.	6 yrs.	1:32	1:958	30	+				
R. A.	9 yrs.	1:45	1:6,700	120	+	Negative			
H. F.	10 yrs.	1:45	1:1,560	35	+	Sixth	1:138	1:2,018	+

always produced a fluid containing sufficient agglutinating antigen to permit the identification of the virus type.

Unknown viruses were identified as influenza A by determining the titers of the following two serum pools against the unknown strains:

Serum 1. A pool of serums taken from several human subjects during the acute phase of influenza A. The titer of this serum against the PR8 strain of influenza A virus was 1:256 and against the Lee strain of influenza B virus 1:128.

Serum 2. A pool of convalescent phase serums taken from the same patients as serum 1 at approximately two or three weeks after onset of illness. The titer of serum 2 against the PR8 influenza A virus was 1:3,010, against the Lee influenza B virus 1:128.

When tested against an unknown virus, an increase in titer of serum 2 of more than four times over serum 1 was taken to indicate that the unknown virus was influenza A.

In the accompanying table are given details concerning antibodies to influenza A in the serums examined and details concerning isolation and identification of virus strains. All pairs of serums examined for antibodies against influenza A were also examined for antibodies against influenza B. In no instance was any significant increase in titer noted against the latter

the titer of a second convalescent serum specimen. Isolated instances of virus isolation without serologic response have been previously reported.¹⁵ The apparent drop in titer observed in this patient's serum cannot be explained at present.

Among infants of less than 23 months of age, who to the best of our knowledge had had no previous infection with influenza A virus, the preinfection antibody titers were appreciably lower than in the group from 35 months to 10 years of age. All the members of the latter group had presumably had opportunity to be infected with this virus. Including only individuals with positive serologic diagnosis, the average preinfection titer of the first group was 1:50 and that of the second was 1:119. In this respect it should be noted that the hemagglutinin-inhibition test may not be capable of determining very low neutralizing antibody titers in certain serums. In low dilutions, serums containing no specific antibodies whatever may cause inhibition of agglutination. This nonspecific effect generally disappears in serum dilutions over 1:64.⁵

The average postinfection antibody levels of the two groups were 1:2,000 and 1:4,189, which indicated that the older children had produced only slightly greater

15. Francis, T., Jr., Mauri, T. P., Rickard, E. R., and Peck, M. D.: Etiological Studies of Epidemic Influenza, *Am. J. Pub. Health* 27: 1141, 1937.

antibody titers than the younger. The average incremental antibody rise of the titers of convalescent serums of the two groups were forty and thirty-five times the average preinfection titers in the younger and older groups respectively. Were it possible to eliminate the factor of nonspecific inhibition in the preinfection serums of the first group, it would seem likely that the incremental rise of this group would have been far greater. Previous studies in which neutralization tests were done in mice¹¹ have shown that the serums of children of this age, who have had no infection with influenza virus, possess almost no demonstrable neutralizing antibodies.

COMMENT

By the use of recently developed laboratory technics, it has been possible to diagnose an epidemic of influenza A in a group of infants and children. The antibody response in infants who were, in all probability, having their first experience with the disease has been studied. Although previous investigators have successfully infected ferrets with influenza by inoculation of throat washings taken from infants ill with influenza,⁶ neutralizing antibodies were not demonstrated in the convalescent serums of the patients from whom the washings were obtained.⁷ In the pediatric literature, several references to the inability of infants to develop neutralizing antibody titers are recorded. The observations recorded here show that, following infection with influenza A virus, infants develop antibody responses of approximately the same magnitude as do older children.

Throughout the epidemic, all cases suspected of being influenza on clinical evidence alone were included in the series studied. Four of the patients showed no antibody response, nor was virus isolated from these patients' throats. Symptoms and findings in these cases did not differ appreciably from those of the cases in which positive serologic diagnosis or virus isolation was obtained. Previous investigators have observed in the study of epidemics of influenza A among adults that persons ill during an epidemic do not all present positive serologic findings, nor may virus be isolated from the patient's throat washing in every instance.¹⁶

By means of throat washings which were inoculated in the unfiltered state intra-allantoically into eleven day chick embryos, the early identification of the virus was made possible. In 1 instance in this epidemic the virus was isolated in the first passage forty-eight hours after the washing was inoculated. Rickard, Thigpen and Crowley⁴ found that throat washings need not be filtered to permit direct embryonated egg inoculation and that the simple intra-allantoic route of inoculation serves as well as the intraembryonic.

Clinically this study confirms the observations of Brightman and Trask⁶ that infants and young children with influenza have high, irregular or biphasic fevers. These were the predominant types of temperature curves recorded in these patients and seem significant in contrast to febrile curves recorded on young adults in the same epidemic.¹⁷ The outstanding response in the latter group was a fever rising abruptly and falling rather rapidly, generally in two to four days.

Aldrich¹⁸ calls attention to the association of grip and laryngitis, which in his study ran a close parallel, "making it seem possible that croup is a manifestation

of grip in infancy." It would seem probable that other infectious agents responsible for certain upper respiratory diseases of undetermined etiology, which in practice are commonly designated as grip, may be the cause of laryngitis or croup in infants. In the present study, however, influenza A virus was not found to cause such symptoms.

SUMMARY

In the study of an epidemic of influenza occurring in infants and children, the disease was characterized by irregular or biphasic fever curves. Leukopenia was not found to be present. Acute pharyngitis, often hyperemic, and lassitude were the most prominent physical findings. None of the patients manifested severe laryngitis or croup.

Influenza A virus was isolated from throat washings taken from a number of the patients and inoculated intra-allantoically into developing chick embryos. The serologic diagnosis of the epidemic was established by the demonstration of significant increases in neutralizing antibodies by means of the hemagglutinin inhibition test in the serums of 18 out of 23 patients so examined. The neutralizing antibody response of infants, who in all probability were having their first infection with influenza A virus, was found to be of approximately the same magnitude as that of older children.

"CONGENITAL" MUSCULAR TORTICOLLIS

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Although "congenital" muscular torticollis is encountered frequently by pediatricians and orthopedic surgeons, there is no uniformity of thought as to its etiology or therapy. There is much confusion as to diagnosis. The numerous factors which may contribute to the development of a torticollis (wry neck) deformity are found in the accompanying classification.

Congenital muscular torticollis is a distinct entity, the primary pathologic picture being limited to the sternocleidomastoid muscle. Associated deformities of the face, head, ear and cervical spine are secondary in character, resulting from an abnormal position of the head both prior and subsequent to birth.

Muscular torticollis may be present at birth or may manifest itself first on about the tenth to the fourteenth day, at which time the appearance of a hard, immobile, fusiform swelling (fig. 1) is noticed in the sternocleidomastoid muscle. The delivery is usually difficult or abnormal, most often breech. The swelling or "tumor," as it is commonly called, usually increases in size for two to four weeks until it reaches the size of a very large almond. It then begins to regress and may disappear completely in from five to eight months. The muscle at this time feels short and fibrous, and is noncontractile. The torticollis becomes increasingly severe, and the head is tilted toward the affected side and the face toward the opposite side (fig. 2). This position may disappear only to reappear later at a period of rapid growth. As a result of the head being held more or less constantly to one side, and the imbalance of forces and muscle pull exerted on the head, the skull becomes foreshortened in the oblique fronto-

16. Rickard, E. R.; Lennette, E. H., and Horsfall, F. L., Jr.: A Comprehensive Study of Influenza in a Rural Community, *Pub. Health Rep.* 55: 2146, 1940. Stuart-Harris and others.⁹ Horsfall, Hahn and Rickard.⁹ Francis, Magill, Rickard and Beck.¹⁵

17. Boynton, R.: Personal communication to the authors.

18. Aldrich, C. A.: Clinical Observations on Grip as Seen in Pediatric Practice, *J. Pediat.* 11: 331, 1937.

occipital diameter. The level of the eyes changes, the mastoid process becomes more prominent and the clavicle and shoulder become elevated on the affected side. A lower cervical, upper dorsal scoliosis may develop with concavity toward the involved side. The deformities may be present at birth or soon after or may seem to develop at a later date if the torticollis persists.

PATHOLOGY

Gross.—The "tumor" of the sternocleidomastoid muscle in muscular torticollis is not a tumor in the sternocleidomastoid muscle but usually is a fusiform swelling of the entire muscle comprising both the sternal

TABLE 1.—Classification of Torticollis

1. Structural	
a. <i>Ossous</i>	
Hemivertebrae	Spina bifida
Congenital fusion of cervical vertebrae	
Klippel-Feil syndrome	
Malformation of skull and vertebral processes	
Cervical rib	Posttrachitic
Pterygium colli	Sprengel's deformity
Compensatory to structural defects of dorsal and lumbar spine	
b. <i>Myogenic</i>	
Congenital absence of cervical muscles	
Congenital hypertrophy	
2. Paralytic	
Anterior poliomyelitis	Erb's
Spastic paralysis	
Postinfections (neuritis)	
Post-traumatic	Spasmodic
Other nerve lesions	
3. Vascular	
Congenital	Anterior scalenus syndrome
4. Infections	
Cervical adenitis	Retrolaryngeal abscess
Retropharyngeal abscess	Otitis media
Mastoiditis	Myositis
Infections of cervical vertebrae	
Infections of occiput	Cervical abscess
Arthritis and synovitis	Spondylitis
Cutaneous infection	
Infections of congenital cysts and diverticula	
Spontaneous dislocation of cervical vertebra	
Fascitis	Meningitis
5. Traumatic	
Fractures and dislocations of cervical spine	
Fractures of cranial base	
Trauma of cervical fascia, muscles, nerves, etc.	
Fracture of clavicle and scapula	
6. Functional	
Hysterical	
Spasmodic torticollis?	
7. Ocular	
Visual defects, corneal scars, etc.	
Muscular	
8. Aural	
Deafness	
Vestibular	
9. Scar Formation	
Burns	
Trauma	
Lupus, etc.	
10. Neoplastic	
Local	Osseous
Central	Myogenic
	Lymphatic
	Vascular
	Nerve
11. Congenital	
Posture in utero	
Trauma at birth	
Ischemia? of muscle	

and clavicular heads (fig. 3). The size of the "tumor" varies from 2 to 6 cm. in length and from 1 to 1.5 cm. in width. It feels firm, fibrous and at times cartilaginous. On section it appears white and glistening. If tissue is taken from the sternocleidomastoid muscle in an older child after the disappearance of the tumor, the muscle will be found to be replaced by a dense, fibrous, tendinous band.

Microscopic.—Microscopic examination of the "tumor" in young infants reveals no suggestion of hematoma but the almost complete disappearance of muscle cells and replacement by dense, fibrous tissue (figs. 4, 5 and 6). The few muscle fibers remaining are in varying stages of degeneration, showing swelling, vacuolization, some with many nuclei, an absence of

striations, and changes in their staining characteristics. Some may even show calcification. Great masses of young fibrous tissue and fibrocytes are present. Giant cells may be present. A few vessels may show some perivascular infiltration, but all are patent. No hem-

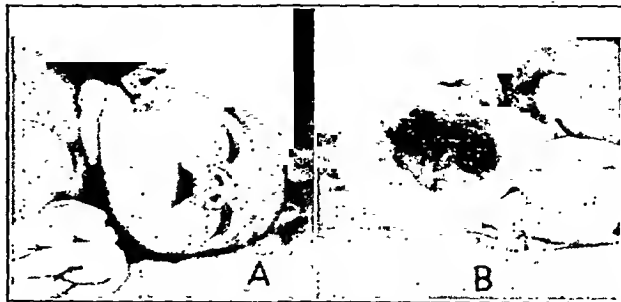


Fig. 1 (P. O'D., white girl aged 6 weeks).—A, anterolateral and B, posterolateral views showing typical sternocleidomastoid tumor in muscular torticollis.

orrhage or hemosiderin is present. As the age increases and the tumor begins to disappear, more and more of the muscle cells vanish and the fibrous tissue becomes dense and acellular, so that finally all that remains is



Fig. 2 (D. S., white girl).—A, aged 11 months, at time of removal of right sternocleidomastoid "tumor"; B, ten years later.

dense inelastic hyaline connective tissue with nuclei arranged in parallel rows, thus resembling tendon.

ANATOMY

We have noted that certain misinterpretations of the anatomy of the arterial supply and venous drainage of

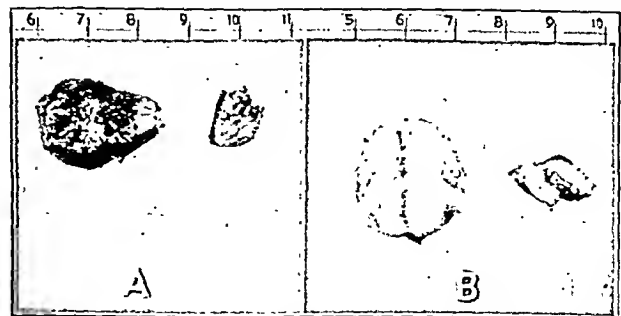


Fig. 3.—A, sternal and clavicular heads; B, same tumor sectioned to show hard white cartilaginous character of tumor mass. "Tumor" was removed from infant 8 weeks old.

the sternocleidomastoid muscle have been perpetuated in the literature on torticollis. Many of these inconsistencies or misinterpretations have been used as the basis of theories of etiology, namely the theories of

arterial and venous occlusion. De Gaetano¹ also noted anatomic inconsistencies in the literature on torticollis. We undertook, therefore, to dissect the sternocleidomastoid muscles from 10 stillborn infants after the

sternocleidomastoid muscle to the etiology of muscular torticollis.

The sternocleidomastoid muscle is a large, lateral, oblique muscle of the neck region which spans from the anterior, superior portion of the pectoral girdle to the mastoid region of the temporal bone of the skull. It is enveloped by a double layer of the external cervical fascia. It has two heads of origin and one composite head of insertion. It is usually made up of five or more distinct muscle bellies. Those found most consistently in our dissections (fig. 7 A, A') were (1) superficial sternomastoid, (2) superficial sterno-occipital, (3) superficial cleido-occipital, (4) deep sternomastoid, (5) a double deep cleidomastoid. The nerve supply of the sternocleidomastoid muscle is made up of both visceral and somatic motor branches. Although its motor supply arises chiefly from visceral fibers of the

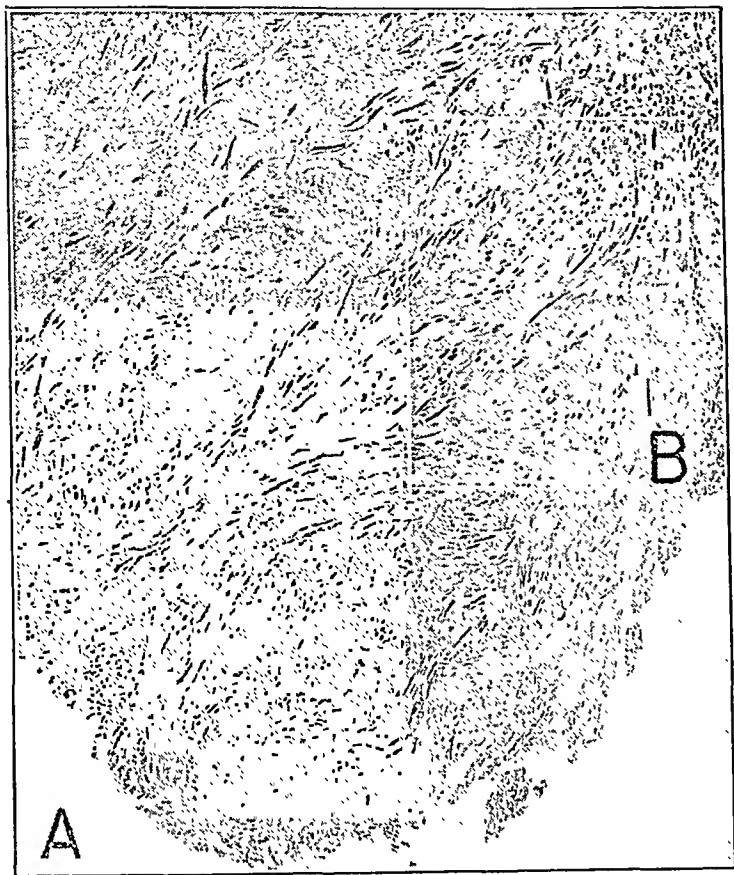


Fig. 4.—Section of entire sternocleidomastoid "tumor" resected from infant 15 weeks old. The muscle tissue is almost completely replaced by young fibrous tissue and fibroblasts. In some areas there is a round cell infiltration. The remaining muscle cells show varying degrees of degeneration. Hematoxylin and eosin.

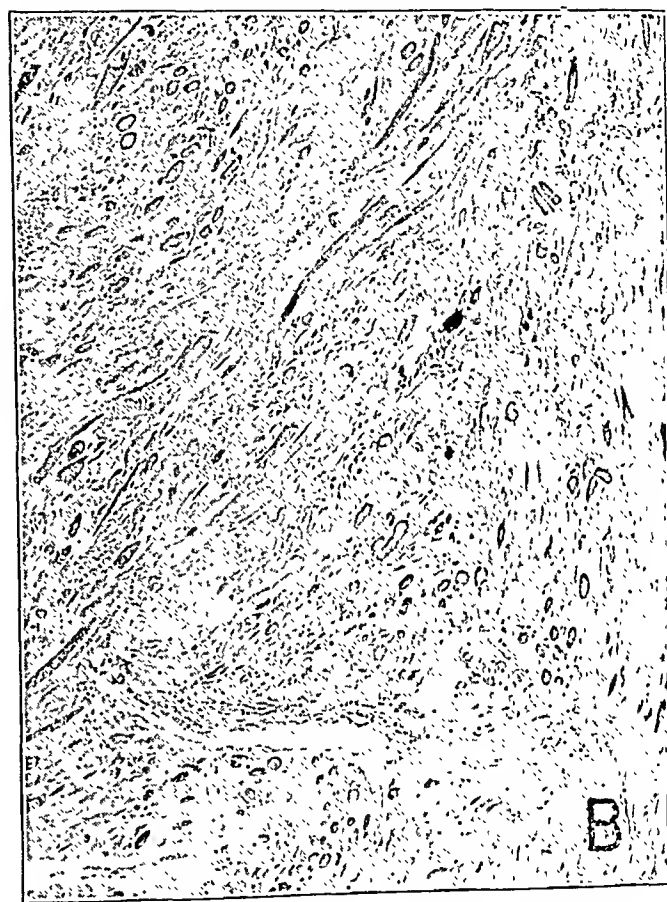


Fig. 6.—Same tissue shown in figure 4 B under low power.

spinal accessory nerve, it also receives both motor and sensory fibers from the 2d, 3d and 4th cervical nerves. The spinal accessory nerve runs deep to the muscle and usually lies between the bellies of the cleido-occipital portion of the muscle in its middle third in close approximation to the muscular branches from the occipital artery.

The arterial supply (fig. 8) is quite extensive, arising from five or more main arterial sources. The occipital branch of the posterior auricular artery supplies the upper portion of the muscle near its aponeurotic insertion. This branch frequently anastomoses with the occipital artery. The sternocleidomastoid artery or muscular branches of the occipital artery supply the upper portion of the muscle with many large major branches which ascend and descend in each muscle belly. The sternomastoid branch of the superior thyroid artery supplies the middle and part of the lower third of the sternocleidomastoid muscle and sends two main branches, in addition to many small branches,

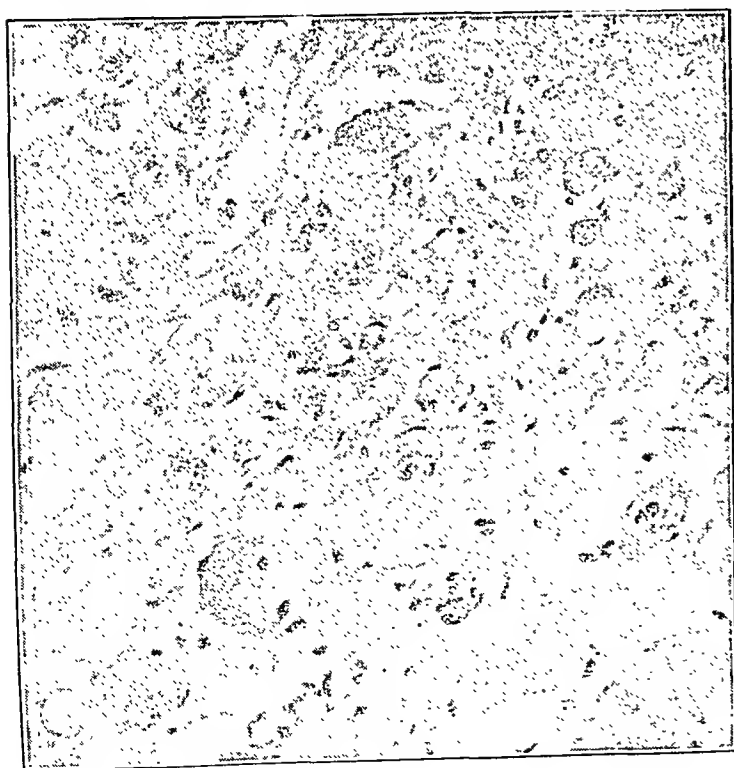


Fig. 5.—Same tissue shown in figure 4 B under high power.

injection of the veins and arteries in order to determine the anatomy of the sternocleidomastoid muscle and to ascertain, if possible, the anatomic relations of the

1. de Gaetano, L.: *Patogenesi e cura chirurgica del torticollismo muscolare negli adulti*, *Riforma med.* 51:1463-1466, 1935.

down the two chief muscle divisions. A branch of the transverse scapular artery supplies the lower portion of the muscle by many secondary branches. An arterial branch arises from the ascending branch of the transverse cervical artery and supplies the lower lateral portion of the muscle.

The vessels of venous drainage of the sternocleidomastoid muscle (fig. 9) are even more profuse than are the vessels of the arterial supply. Not only is there an overlap of venous drainage areas, but also there are numerous communications between the main venous channels both within the muscle substance and those on its surface. The venous drainage of the sternocleidomastoid muscle occurs into all the major veins of the neck, the internal jugular, the external jugular, the anterior jugular, the transverse scapular, the occipital, the posterior auricular, the posterior facial and the anterior facial veins. As may be seen in figure 9 there are frequent and profuse communications not only between the main venous channels but also between their branches on the surface, and in a maze and rete within the muscle tissue itself.

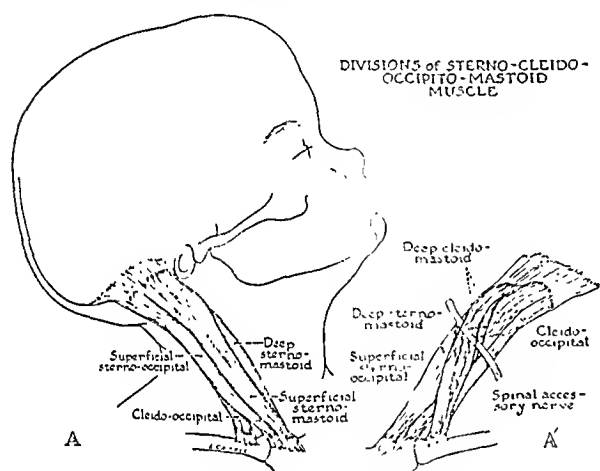


Fig. 7.—A, external and A' internal view of right sternocleidomastoid artery showing chief muscle bellies and their relation to spinal accessory nerve.

THEORIES OF ETIOLOGY

Nearly all the various types of pathologic disturbances which affect the human organism have been regarded at one time or another as being the etiologic factor of muscular torticollis. Some of the theories of etiology of muscular torticollis have been discussed in an excellent manner in the writings of Fitz Simmons,² Fisher,³ Hough⁴ and others and therefore are only mentioned in this paper. Others need clarification and rationalization in a more complete manner in the light of more recent observations by other authors (Sippel,⁵ Bargellini,⁶ Abels,⁷ de Gaetano,¹ Kastendieck⁸ and others) and in the light of our own anatomic dissections and clinical studies.

2. Fitz Simmons, H. J.: Torticollis, J. A. M. A. 64: 645-649 (Feb. 20) 1915; Congenital Torticollis: Review of Pathological Aspects, New England J. Med. 209: 66-71, 1933.
3. Fisher, A. L.: Torticollis: A Review, Am. J. Orthop. Surg. 14: 669-681, 1916.
4. Hough, G. deN., Jr.: Congenital Torticollis: Review and Result Study, Surg., Gynec. & Obst. 58: 972-981, 1934.
5. Sippel: Der angeborene muskuläre Schiefhals, Deutsche. Ztschr. f. Chir. 155: 1-48, 1920.
6. Bargellini, D.: Intervento precoce nel torticollismo muscolare congenito, Chir. d. org. di movimento 16: 415-428, 1931.
7. Abels, H.: Die Entstehung des sogenannten angeborenen Schiefhalses, Wien. med. Wchnschr. 84: 1094-1097, 1934; Ueber die Entstehungsweise des sogenannten angeborenen Schiefhalses, seine konstitutions- und etopathologischen Beziehungen; die unmittelbaren Entstehungsbedingungen, Ann. paediat. 152: 4-34, 96-116, 1938.
8. Kastendieck, H.: Ueber die Aetiologie des angeborenen muskulären Schiefhalses, Zentralbl. f. Gynäk. 63: 727-729, 1939.

The intrauterine theory regards the deformity of muscular torticollis to be the result of abnormal pressure, position or trauma to the head, neck and particularly the sternocleidomastoid muscle during the intrauterine life. Investigators who have supported this view, in whole or in part, are, among others, Van Roonhuysen,

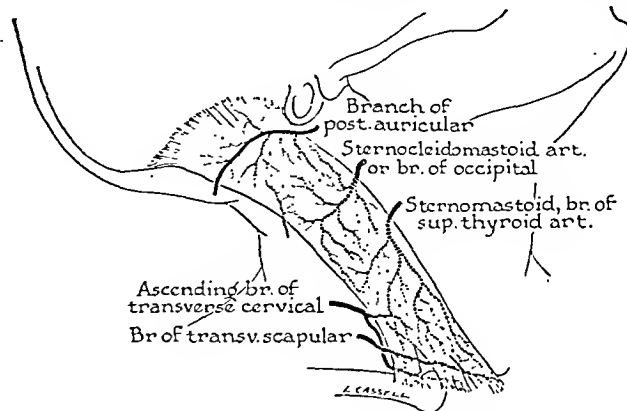


Fig. 8.—Chief arterial supply of sternocleidomastoid muscle.

Petersen,⁹ Schmidt,¹⁰ Morse,¹¹ Sippel,⁵ Stern,¹² Jones and Lovett,¹³ Colonna,¹⁴ Rossi,¹⁵ Bargellini,⁶ de Gaetano,¹ Abels⁷ and Kastendieck.⁸

The hereditary theory of muscular torticollis suggests that the deformity is due to abnormal formation or defects, of a hereditary nature, of the anlage of the sternocleidomastoid muscle. This theory has not been very well accepted. Some authors have associated torticollis on the hereditary basis with the presence of other congenital defects in cases of torticollis, and other authors with trauma during delivery to the sternocleidomastoid muscle already congenitally deformed.

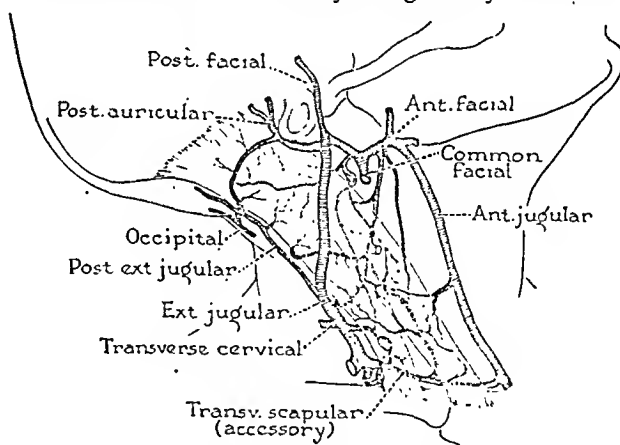


Fig. 9.—Chief venous drainage of sternocleidomastoid muscle, showing large number of venous anastomoses within and without the muscle tissue.

The hereditary theory has been supported by Joachimsstal,¹⁶ Krogius,¹⁷ Schubert,¹⁸ Hellstadius,¹⁹ Aberle,²⁰ Isigkeit²¹ and Schmid.²²

9. Quoted by Fisher³ and Morse.¹¹
10. Schmidt, Meinhard: Zum Kapitel des Schiefhalses, Zentralbl. f. Chir. 17: 570-572, 1890.
11. Morse, A. H.: Bilateral Congenital Caput Obstupum, Surg., Gynec. & Obst. 20: 74-77, 1915.
12. Stern, A.: Zur Aetiologie des angeborenen Schiefhalses, Monatsschr. f. Geburtsh. u. Gynäk. 65: 179-180, 1924.
13. Jones, R., and Lovett, R.: Orthopedic Surgery, ed. 2, New York, William Wood & Co., 1923.
14. Colonna, P. C.: Congenital Torticollis, Virginia M. Monthly 53: 794-796 (March) 1927.
15. Rossi, D.: Un caso di torticollismo congenito in un feto estratto con parto caesareo, Riv. d'ostet. e ginec. prat. 10: 277-282, 1927.
16. Joachimsstal, mentioned by Fitz Simmons,² Fisher³ and others.
17. Krogius, A.: Zur Pathogenese des muskulären Schiefhalses, Acta chir. Scandinav. 56: 497-512, 1924.

(Footnotes continued on next page)

The neurogenic theory has been discarded for the most part and has not been associated with muscular torticollis in the literature of recent years. The pathology of the sternocleidomastoid muscle with muscular torticollis as seen by microscopic sections at various stages and ages in no way resembles that seen in muscle tissue with the spastic or paralytic type of nerve involvement or in neuromuscular dystrophies. The neurogenic theory has been supported by Golding Bird and Gallavardin and Savey.²³

The infectious theory of muscular torticollis is based mainly on the pathologic picture as seen on section, because the microscopic picture is not wholly unlike that of an infectious myositis. Organisms have never been cultured, experimental inoculations have failed, polymorphonuclear leukocytes are rarely seen even in the acute stage and certainly the constitutional signs of an infection involving an entire muscle are not present clinically. The proponents of this theory believed the infection might occur in intrauterine life, post partum or in a muscle damaged by the trauma of delivery (Kader,²⁴ Volkmann, Mikulicz⁹).

The theory of birth trauma in our opinion is applicable to a large number of cases of muscular torticollis, not as it is commonly associated with a traumatic rupture of the muscle with the formation of a hematoma, but rather as the trauma causes almost complete derangement of the anatomy of the muscle. The muscle may have been damaged in intrauterine life by abnormal intrauterine position and pressure and may have had an associated secondary loss of nutrition due to vascular dissociation and trauma, thereby rendering it more susceptible to a traumatic delivery. The belief that muscular torticollis is secondary to a hematoma as a result of muscle tear seems to us to be untenable, for a hematoma would arise at the time of trauma instead of waiting ten to fourteen days as does the "tumor" in muscular torticollis; the "tumor" of muscular torticollis is hard, firm and not fluctuant as is a hematoma; and finally in none of our patients in whom the "tumor" was removed, even the youngest, was there any sign of intramuscular hemorrhage, or was hemosiderin to be found on microscopic section. Some writers believe that it is injury to the sternocleidomastoid muscle, per se (Stromeyer,²⁵ Janek²⁶); others that injury occurs in muscles which have embryologic defects (Aberle²⁰); others in muscles made abnormal by intrauterine malposition (Sippel,⁵ de Gaetano,¹ Abels,⁷ Bargellini⁶ and others), one that trauma occurs with subsequent infection (Kader²⁴).

The theory of arterial occlusion during delivery or ischemia is hardly acceptable or even probable as the primary etiologic agent of muscular torticollis. Volcker,²⁷ Nové-Josserand and Viannay,²⁸ Kempf²⁹

and Schloessmann³⁰ were the chief proponents of this theory. Much of the early work on this theory was done by Nové-Josserand and Viannay, who based their opinion on the fact that, when the injection of the arteries of the cervical region of stillborn infants was attempted with the head held in certain positions through which the head moves and rotates during birth, certain branches of the arteries supplying the sternocleidomastoid muscle did not fill. They based their opinion also on the belief that anatomically the sternocleidomastoid muscle is made up of three distinct muscle segments, an upper mastoid portion, a sternal head and a clavicular head, and that each of these segments has its own isolated arterial supply and venous drainage without overlap. These observations seem incorrect as our, and other, anatomic dissections would indicate. De Gaetano was also of the opinion that the concepts of the anatomy and vascular supply and drainage of the sternocleidomastoid muscle appearing in the literature on torticollis were incorrect. The distribution of the major arterial branches and vessels is very profuse (fig. 8). The arterial branches arise from rather widely separated sources, and therefore it does not seem logical that each isolated branch could be occluded, as would have to be the case to cause the extreme, diffuse and relatively complete change that occurs throughout most of the sternocleidomastoid muscle in muscular torticollis. The pathologic picture of muscle after arterial occlusion is that of extreme atrophy and disintegration, not fibrosis as is the case in muscular torticollis. It was interesting to note in the surgical removal of sternocleidomastoid "tumors" in infants with muscular torticollis that all of the arterial branches shown in figure 8 bled freely within the body of the muscle and "tumor."

The theory of venous occlusion during delivery as the etiology of muscular torticollis was first advanced by D. Stewart Middleton³¹ of Edinburgh in October 1930. His work is the basis for the most prevalent thoughts concerning the etiology and pathology of muscular torticollis both in the orthopedic and in the pathologic literature of this country. He maintains that muscular torticollis and the "tumor" of the sternocleidomastoid muscle are the result of an acute temporary venous obstruction in the sternocleidomastoid muscle during labor, with resulting muscle necrosis. He bases his opinion on some of his own research, on his interpretation of that of Barney Brooks³² of St. Louis, on the pathologic picture and on inference. We believe that the theory of Middleton is incomplete.

Muscles in which the complete venous drainage has been obstructed show a pathologic picture similar to that of muscular torticollis. It is on the similarity between the pathology of the "tumors" of muscular torticollis and that of experimental muscles which have had their venous drainage occluded, and on the erroneous idea that the venous drainage of the sternocleidomastoid muscle was through isolated vessels which did not anastomose or communicate, that the theory of venous occlusion as the etiologic factor of muscular torticollis is based. To quote Middleton: "The sternomastoid muscle is derived from three different muscular segments, . . . each portion retaining unaltered its own original arterial supply and consequently its own venous return." By the three different seg-

18. Schubert, A.: Die Ursachen der angeborenen Schiefhalskrankung, Deutsche Ztschr. f. Chir. 167: 32-59, 1921; Zur Aetiologie der Schiefhalskrankung, Arch. f. klin. Chir. 142: 646-657, 1926.

19. Hellstadius, A.: Torticollis congenita, Acta chir. Scandinav. 62: 586-598, 1927.

20. Aberle, W.: Aetiologisches zum Schiefhals, Ztschr. f. orthop. Chir. 49: 27-43, 1927.

21. Isigkeit, E.: Untersuchungen über die Heredität orthopädischer Leiden; der angeborene Schiefhals, Arch. f. orthop. u. Unfall-Chir. 30: 459-494, 1931.

22. Schmid, W.: L'étiologie du torticollis musculaire, Presse méd. 45: 1189-1191, 1937.

23. Gallavardin, L., and Savey, P., quoted by Middleton.³¹

24. Kader, B.: Das Caput obstipum musculare, Beitr. z. klin. Chir. 17: 207, 1896.

25. Stromeyer, L., quoted by Fisher³ and others.

26. Janek, J.: Beitrag zur traumatischen Aetiologie der Torticollis, Ztschr. f. Orthop. 71: 290-295, 1941.

27. Volcker, quoted by Fitz Simmons² and Fisher.³

28. Nové-Josserand, G., and Viannay, C.: Pathogénie du torticollis congénital, Rev. d'orthop. 7: 397, 1895.

29. Kempf, F.: Ueber Ursache und Behandlung des Caput obstipum musculare, Deutsche Ztschr. f. Chir. 73: 351, 1904.

30. Schloessmann, H.: Die Entstehung des angeborenen muskulären Schiefhalses, Beitr. z. klin. Chir. 71: 209-253, 1911.

31. Middleton, D. S.: The Pathology of Congenital Torticollis, Brit. J. Surg. 18: 188-204, 1930.

32. Brooks, B.: Pathologic Changes in Muscle as a Result of Disturbances of Circulation, Arch. Surg. 5: 188-216 (July) 1922.

ments Middleton means an upper mastoid portion, a sternal head and a clavicular head. To quote Middleton further: "Nové-Jossierand and Viannay, investigating the circulation of the sternocleidomastoid muscle in the stillborn fetus, found that these three systems of blood supply were independent, each supplying its own portion of the muscle and failing to communicate with each other or surrounding arteries. If this is so, it follows,

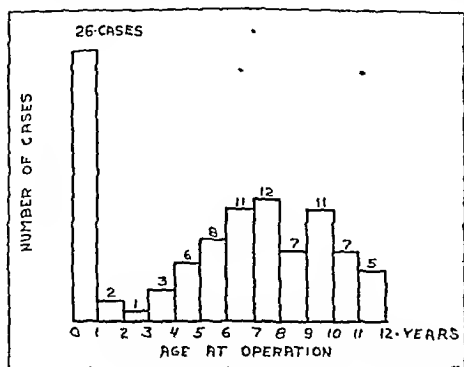


Fig. 10.—Incidence of torticollis cases at the age of operation; total series of 101 cases.

of course, that the venous systems are also independent." As may be seen on figure 9, drawn from our dissections, the number of venous anastomoses both within and without the sternocleidomastoid muscle are numerous, and it is difficult to see how the obstruction of one or more veins could effect the complete generalized destruction and degeneration of the sternocleidomastoid muscle which is seen in muscular torticollis.

Middleton reproduced some of the experimental work of Barney Brooks of St. Louis and attempted to apply them to muscular torticollis and the sternocleidomastoid muscle. Brooks ligated the veins from an isolated rectus femoris muscle in a dog and produced obvious changes in the muscle: "Within an hour the muscle became swollen, hard and a dark blue." These changes, however, are not similar to the changes which occur in the sternocleidomastoid muscle either as to the immediate pathologic change or as to the time at which swelling and tumefaction occur in muscular torticollis. If the observations of Brooks are accepted, cases in which complete venous obstruction occurs during delivery, a tumor, hard and enlarged, should be felt or noted in the sternocleidomastoid muscle soon after the initial trauma and delivery. This is not the situation, for these tumors are rarely recognized before the tenth day. Middleton also states that the small uppermost portion of the muscle close to the mastoid attachment is seldom involved because of the fact that the veins pass deep and down to the main venous trunks. This has not been the case in our group of cases of 26 infants under 1 year of age from whom the tumor was resected. We found that the pathologic picture was that of a diffuse involvement usually throughout the entire muscle and that if any muscle cells were present at all they were in various stages of degeneration or were in isolated marginal longitudinal strands, not in transverse zones.

We therefore cannot subscribe to the theory that primary venous occlusion during delivery, per se, is the origin of muscular torticollis and the sternocleidomastoid "tumor." A few theoretical questions may be asked:

1. Since the most frequent single type of delivery in muscular torticollis is the breech delivery, how can

venous occlusion be caused for a time long enough to cause the extensive reaction exhibited in the pathologic changes of muscular torticollis, when in this type of delivery the head and neck float freely until the last five to seven minutes in which the delivery must be accomplished in order to get a viable child?

2. If acute venous obstruction could occur to the extent of obstructing the venous drainage, why is only the sternocleidomastoid muscle involved, and why are not the head, brain and other muscles of the neck involved, as some of these structures are more labile and sensitive to anoxemia?

3. Why have investigators been unable to demonstrate venous thrombosis consistently in the tumors of muscular torticollis?

CLINICAL OBSERVATIONS AND SURGICAL RESULTS

Our clinical observations are based on a consecutive series of 101 patients with muscular torticollis operated on since 1930 at the Children's Memorial Hospital, Chicago. During the earlier years of these studies, operation was reserved for older patients presenting cordlike contractures on the affected side and the usual facial deformity with associated distortions of the head, cervical spine and eyes. More recently the age at the time of operation has dropped decidedly and is now chiefly below 3 months. Operative treatment of torticollis in early infancy seems to us to be fully justified, as it is a means of preventing the usual deformity instead of waiting until such deformity has developed and then attempting to correct it. The results of surgical correction in young infants have been so uniformly successful that we now feel operation is the treatment of choice in the more severe cases. Reference to figure 10 and table 2 will reveal the age distribution of the patients in this series. Twenty-six patients have been operated on under 1 year of age. Of these 15 were under 3 months of age, the youngest 3 weeks. In this entire series the sex distribution was essentially

TABLE 2.—Operations for Torticollis on Children Less Than One Year of Age

1 case at 3 weeks of age	1 case at 16 weeks of age
1 case at 5 weeks of age	1 case at 18 weeks of age
6 cases at 6 weeks of age	1 case at 19 weeks of age
3 cases at 8 weeks of age	1 case at 20 weeks of age
1 case at 9 weeks of age	1 case at 22 weeks of age
1 case at 10 weeks of age	1 case at 32 weeks of age
1 case at 11 weeks of age	1 case at 36 weeks of age
1 case at 12 weeks of age	1 case at 39 weeks of age
	3 cases at 44 weeks of age

TABLE 3.—History of Type of Birth

Normal (or no record).....	30
Difficult normal.....	8
Forceps vertex.....	23
Breech.....	30
Shoulder.....	1
Cesarean.....	3
Unknown.....	6

equal, males 48, females 53. The right side was involved in 56, the left in 45. These figures correspond to those of other writers. In no case was bilateral involvement of the sternocleidomastoid muscle found.

A history of the type of birth is most significant, but accurate details are difficult to obtain. However, data were recorded in 95 of these cases (table 3).

The birth histories in the cases in which operation was performed under 1 year of age are probably more accurate. These revealed a breech position in about 50 per cent and abnormal deliveries in most of the

remaining. The probability of an intrauterine torticollis preventing engagement of the fetal head in the pelvic inlet and thereby causing a breech presentation seems quite obvious. This possibility has been suggested previously by Isigkeit.²¹ If this is correct, close inspection of the head and neck by the obstetrician and pediatrician in all cases of breech delivery might well reveal significant findings. Antepartum roentgenograms (fig. 11) in 1 case were available for study. These showed the fetus in breech position with the head in right lateral flexion. This infant was delivered by cesarean operation. Torticollis was present at birth and became increasingly pronounced. A tumor was noted at the age of 14 days. Tumors involving the sternal and clavicular portions of the right sternocleidomastoid muscle were removed at 11 months of age. This case supplements the observations of Sippel referred to elsewhere in this paper.

Associated pathologic conditions other than the clinical findings of torticollis were of low incidence in this series. Erb's palsy occurred three times, once on the same side as the torticollis and twice on the opposite side. One patient had a congenital short arm on the

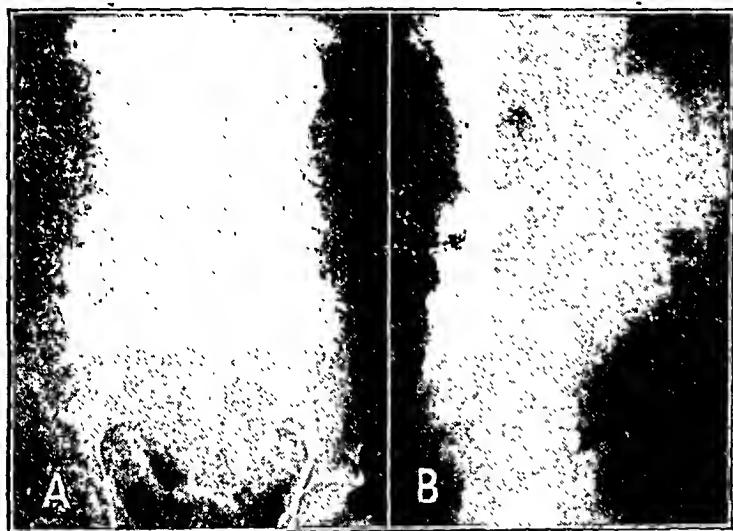


Fig. 11.—A, lateral view of intrauterine infant; B, anterior oblique view showing head flexed laterally against right shoulder. Infant was delivered by cesarean section and had a right muscular torticollis, the tumor of which was resected at 11 months of age.

involved side. Three patients were operated on for hypertrophic pyloric stenosis. We have no opinion as to the significance of hyperplasia of the pyloric musculature in its association with torticollis but wish to record this observation.

A familiar history of torticollis emphasized by some writers did not appear to be important in our group of cases. Two mothers had untreated muscular torticollis with deformities, and the brother of 1 patient had a definite fibrous cord replacing the sternomastoid muscle and a mild degree of facial asymmetry.

The presence of a tumor had been noted by the parents in 40 cases on the tenth to the fourteenth day after birth. These tumors increased in size for from two to five weeks and then remained constant in several cases for as long as eighteen months. Others subsided quite rapidly.

In 73 cases the torticollis deformity was noted within the first three months of life. No definite record was obtained in the other cases. In several instances the deformity was first noticed by school teachers or others not in the patient's family.

The follow-up observations in this entire series varies from a few weeks to eleven years, with an average of

about four years. With but few exceptions the results have been most gratifying. Correction of the deformity and full range of motion is to be expected. Slight flattening of the neck over the involved muscle and some apparent increase of the prominence of the sternoclavicular area may be present. Five of this series showed some limitation of rotation. This occurred in those older patients in whom release of the muscle from the mastoid process had been attempted. Three of these have had successful secondary operations with release of the sternal and clavicular heads. Three patients developed keloid scars. One death occurred in this series.

SELECTION OF CASES FOR SURGICAL TREATMENT

Little disagreement as to the indications for operation is encountered when considering patients over 5 years of age. The presence of a gross deformity involving the head, neck and face and the existence of an inelastic fibrous cord replacing the normally soft, elastic, sternocleidomastoid muscle call for surgical correction. In young infants, however, the indications for surgery are less clearly defined. Many infants showing tumors at 2 weeks of age will show no deformity after several months. Others show a rapidly increasing torticollis deformity and distorted contours of the face and head. We have reserved surgery for those cases presenting the more pronounced changes both of the muscle and of the head, the most important indications being the size of the tumor, the progressive shortness of the sternocleidomastoid muscle and increasing deformity of the head and neck.

OPERATION

No attempt will be made to describe the many procedures applicable to the older cases. In infants of but a few weeks of age, great care and caution must be exercised in removing the tumor mass. A transverse incision is made in the lower skin crease just above the clavicle. The platysma muscle is split by blunt dissection. The "tumor" is then separated from adjacent structures on all surfaces by blunt dissection with a small curved forceps. The sternal portion and the clavicular portion are isolated, a small forceps is passed beneath the muscle and the muscle is divided by multiple transverse incisions until freed from the clavicle. The tumor is then elevated from the deeper structures of the neck and delivered from the wound. The spinal accessory nerve is isolated and freed by cutting through the tumor so as to spare it. The proximal portion of the "tumor" is cut transversely at about the junction of the upper and middle third. All bleeding points are ligated. The wound is closed by deep sutures and the skin by subcuticular suture. A pressure dressing is applied. The head is held in an overcorrected position with starch bandages for two weeks. Active and passive stretchings are then carried out.

COMMENT

We are of the opinion that muscular torticollis does not result from any one single type of pathologic disturbance but from a number of contributory factors which may act separately or together. In muscular torticollis probably intrauterine malposition, trauma during delivery and a degree of local ischemia of the sternocleidomastoid muscle resulting from intrauterine malposition act together in varying degrees to cause the pathologic entity as we know it.

One certainly cannot dismiss intrauterine malposition and pressure as a contributory cause of muscular torti-

collis. This has been demonstrated in a case of ours and in the cases of other authors (Sippel⁵) by the fact that roentgenograms (fig. 11) taken before delivery showed a lateral deflection of the head with rotation, and subsequent delivery by cesarean section revealed a child who had the same deformity post partum as that seen ante partum in the roentgenogram. Then too, immediately after delivery there have been external signs, on infants who had muscular torticollis, of changes which could have occurred only through protracted pressure and malposition (Abels⁷ and Sippel⁵). The most common of these are a well defined change in the size, shape and position of the ear on the side affected, facial asymmetry of a type and severity which must have been present in intrauterine life and a typical torticollis position with the head tilted toward the affected side and facing toward the normal side. When these findings are present immediately after birth, even before the formation of a "tumor," they undoubtedly are due to some protracted intrauterine malposition or pressure. It is reasonable that if, in intrauterine life, the head should be laterally flexed and the shoulder elevated, the acromion, clavicle and head of the humerus could be forced against the sternocleidomastoid muscle, the head and the neck. As a result of this pressure the ear would be deformed and a cervical scoliosis and a facial asymmetry would develop. As a result too of the constant pressure on the sternocleidomastoid muscle by the shoulder during a period when it is undergoing rapid growth and differentiation, it is logical to assume that its development might be arrested by the constant pressure, and it is quite possible that areas of localized ischemia may exist over a relatively long period of time in intrauterine life. The pressure might well cause the lack of development of adequate vascularity during the period of growth of the muscle, thereby causing a relative ischemia.

Muscular torticollis also is most frequently associated with traumatic types of delivery. This is demonstrated statistically by our birth histories and by the birth records of nearly every author who has described a series of similar cases. The prevalence of difficult breech and long and hard forceps deliveries in our series is far too great to be dismissed. It is not hard to understand how the sternocleidomastoid muscle could be subjected to a large number of traumatic strains and stresses during a delivery as short even as a breech delivery. The factors of extension, torsion, traction and pressure certainly could be of consequence, since the sternocleidomastoid muscle is long and functions at the end of relatively long levers. The muscle traumatized in delivery may have the subsequent disintegration and necrosis of the muscle fibers, and as a result of the products of degeneration a nonspecific, sterile inflammatory reaction may be started. This process takes a number of days and thereby may account for the tumefaction of the sternocleidomastoid muscle. The muscle so traumatized may well be one which previously has been rendered atrophic, partially ischemic and shortened as the result of intrauterine malposition, pressure of the shoulder and lateral flexion of the head. These views are supported by some excellent work and observations in recent years by Sippel,⁵ Bargellini,⁶ Abels⁷ and Kastendieck,⁸ whose views and conclusions coincide in many respects with ours.

We believe, therefore, that intrauterine malposition, and the possible pressure and ischemia which may result in the sternocleidomastoid muscle therefrom, contribute to the cause of muscular torticollis by ren-

dering the muscle definitely atrophic, maldeveloped, fibrous, shortened and ischemic. These changes may well cause the muscle in some cases to be liable to damage with a traumatic or even a normal delivery, which would not damage the normal sternocleidomastoid muscle.

CONCLUSIONS

1. The "tumor" seen in muscular torticollis of early infancy is not a hematoma but a fibroma found within the substance of the sternocleidomastoid muscle.

2. Intrauterine torticollis is a potent factor in causing a breech presentation at birth.

3. Intrauterine position, trauma at birth and a pre-existing change of the involved muscle are etiologic factors of muscular torticollis.

4. Surgical treatment in later childhood will correct the deformity of torticollis.

5. Surgical treatment of torticollis in early infancy will not only correct the torticollis but prevent the associated deformities of the head, face and spine.

6 North Michigan Avenue.

GLOBIN INSULIN WITH ZINC IN THE TREATMENT OF DIABETES MELLITUS

HERMAN O. MOSENTHAL, M.D.

NEW YORK

"Globin insulin" was announced by Reiner, Searle and Lang¹ in 1939. It is now available in the open market as globin insulin with zinc in U 80 concentration. Globin insulin with zinc is a clear aqueous solution, having a pH of about 3.7 and composed of 3.04 mg. of globin (a simple protein derived from hemoglobin), 0.24 mg. of zinc (present as zinc chloride) and 80 units of insulin per cubic centimeter; 0.18 per cent of cresol is added as preservative. Observations on the action and clinical use of globin insulin with zinc have been published by Bauman,² Marks,³ Andrews and Groat,⁴ Duncan and Barnes,⁵ Bailey and Marble,⁶ Levitt and Schaus⁷ and Lawrence.⁸ A consideration of these reports and the experience of treating more than 50, nearly all ambulant, cases of diabetes with globin insulin with zinc⁹ furnish the material for this presentation.

ONSET OF RESPONSE OF THE BLOOD SUGAR TO GLOBIN INSULIN

A drop in blood sugar begins, after an injection of protamine zinc insulin, in four to six hours; the response is considerably delayed. Regular insulins (crystalline and unmodified) act immediately. The effect of globin insulin with zinc on the blood sugar in rabbits developed

1. Reiner, L.; Searle, D. S., and Lang, E. H.: Insulin Preparations with Prolonged Activity: I. Globin Insulin, *Proc. Soc. Exper. Biol. & Med.* **40**: 171, 1939.

2. Bauman, L.: Clinical Experience with Globin Insulin, *Am. J. M. Sc.* **198**: 475, 1939; Further Experience with Globin Insulin, *ibid.* **200**: 299, 1940; Globin Insulin, *Bull. New England M. Center* **5**: 17, 1943.

3. Marks, H. E.: A New Globin Insulin: The Importance of Carbohydrate Distribution in the Control of Diabetes with the Modified Insulins, *M. Clin. North America* **24**: 649, 1940.

4. Andrews, G. B., and Groat, W. A.: Globin Insulin, *New York State J. Med.* **40**: 913, 1940.

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7. Levitt, A., and Schaus, J. P.: Clinical Experience with Globin Insulin, *M. Times, New York* **70**: 187, 1942.

8. Lawrence, R. D.: Globin-Zinc-Insulin: Some Experiments, *Brit. M. J.* **2**: 103, 1943.

9. Dispensed by Burroughs, Wellcome & Co. for clinical trial.

somewhat more slowly than that of regular insulin (Reiner, Searle and Lang¹⁰). In human beings globin insulin with zinc brought about a lowering of the blood sugar within two hours (Duncan and Barnes;⁵ Bailey and Marble⁶). This moderate retardation of the starting point of the action of globin insulin with zinc is compensated for by Bauman² by administering globin insulin with zinc thirty to forty-five minutes (forty-five to sixty minutes has been suggested by Bailey and Marble⁶) before breakfast, which should accomplish the control of the postprandial hyperglycemia better than if globin insulin with zinc were given directly before or directly after breakfast, as is the custom with regular insulin.

DURATION OF EFFECT OF GLOBIN INSULIN ON THE BLOOD SUGAR

The duration and degree of the effect of any long-acting insulin on diabetic patients vary considerably and cannot be accurately defined. The extent to which insulin is antagonized (insulin resistance), and the availability of the body's own insulin, the endogenous insulin, are far from constant in every diabetic patient.

TABLE 1.—Protamine Zinc Insulin Administered Every Other Day Controls the Diabetes of Some Patients

Date	Urinary Dextrose, per Cent			Blood Sugar, Mg. per 100 Cc.	Protamine Zinc Insulin Units Every Other Day	Comment
	P.	M.	A. M.			
1940						
Oct. 2	0.0	0.0		182	24	Diet throughout C. 134, P. 104, F. 123, Cal. 2,120
Dec. 27	0.7	0.0		250	32	
1941						
Feb. 28	0.0	0.0		206	40	No hypoglycemic reactions
May 16	0.0	0.0		186	46	
Dec. 5	0.0	0.0		188	72	All blood sugars estimated after breakfast
1942						
Feb. 13	0.3	0.1		171	80	
May 20	0.0	0.0		223	80	Increasing severity of diabetes probably due to nervous strain associated with business worries
Sept. 25	0.0	0.0		133	80	
1943						
Feb. 26	0.0	0.0		146	76	
July 23	0.0	0.0		100	76	
Oct. 1	0.4	0.0		217	70	
Dec. 3	0.0	0.0		174	76	

Man aged 44, diabetes for 7 years, at first controlled by diet only; later insulin became necessary; glycosuria successfully regulated by insulin injections every other day, indicating that protamine zinc insulin may be effective for more than 48 hours.

Furthermore, the amount of carbohydrate in the diet and its distribution throughout the twenty-four hours, the initial level of the blood sugar, whether high or low, exercise, menstruation and nerve strain are added factors that cause the response of the blood sugar to insulin to vary not only from patient to patient but also in the same individual from day to day. Consequently no hard and fast rule can be formulated in regard to the duration of the effect of insulin on the blood sugar, and only what might be termed "limits of error" can be proposed.

The estimates of the capacity of globin insulin with zinc to maintain a reduction in the blood sugar range from fifteen hours (Andrews and Groat;⁴ Lawrence⁸) to twenty-four hours in a few cases (Duncan and Barnes;⁵ Bailey and Marble⁶). If globin insulin with zinc does not act for a full twenty-four hour period then this insulin will not control those very severe cases of diabetes in which the blood sugar rises during the

night while fasting. The actual effect on the blood sugar can be obtained only by making frequent determinations during twenty-four hour stretches while the subject is fasting or receiving small amounts of carbohydrate at short, regular intervals.

Duncan and Barnes⁵ report studies on 5 persons, 1 nondiabetic and 2 with mild and 2 with severe diabetes with doses of globin insulin with zinc varying from 15 to 80 units. These subjects received fruit juice containing 20 Gm. of carbohydrate every two hours during the tests. The blood sugar dropped, or was maintained approximately at its low point, for twelve hours in 2, for sixteen hours in 2 and for twenty-four hours in 1. Bailey and Marble⁶ found in 5 fasting diabetic patients receiving 7 to 11 units of globin insulin with zinc that the blood sugar dropped or remained constantly (or almost constantly) at its low level for at least fifteen hours; in 4 cases the blood sugar was definitely higher (average rise of 154 mg.) at the twenty-third hour; in 1 instance the depressed blood sugar persisted for twenty-four hours.

From all these observations it seems fair to conclude that the duration of the positive effect of globin insulin with zinc on the blood sugar is, as a rule, twelve to sixteen hours and occasionally twenty-four hours.

A note regarding the duration of the effect of protamine zinc insulin on the blood sugar is in order so that in discussing the clinical application of globin insulin with zinc there may be a satisfactory basis for comparing these two insulins. Protamine zinc insulin often results in a drop in the blood sugar which may be maintained for more than forty-eight hours (Wilder and Wilbur¹¹). The very prolonged effect of protamine zinc insulin in some cases is well illustrated by a patient (table 1) who for almost four years has been controlled by insulin administered every other day; during the last two years the dose on alternate mornings has been between 70 and 80 units of protamine zinc insulin. However, regulation of the diabetes by such a procedure is unusual, since protamine zinc insulin would be expected to result in early morning hypoglycemic reactions. It is known that diabetic patients requiring 20 to 30 units or less of protamine zinc insulin are as a rule readily managed by one daily injection. The explanation of this paradox lies in the fact that small doses of protamine zinc insulin act for a shorter length of time than large amounts. Lawrence¹² in 1939 proposed an approximate schedule according to which 10 units or less of protamine zinc insulin acted for six to eight hours, and 30 units or more for twenty-four hours or longer.

This analysis of the effects of globin insulin with zinc and protamine zinc insulin on the blood sugar enables us to conclude that in the mild cases in which only postprandial hyperglycemia exists and not with a nocturnal (fasting) rise of blood sugar, requiring about 20 units of protamine zinc insulin, the action of these two insulins is almost identical and, as will be shown later, equally serviceable. However, it is necessary to bear in mind that about 3 units of globin insulin with zinc accomplishes what 4 units of protamine zinc insulin does and that the distribution of the diet calls for a considerable luncheon, or extra food at about 3:30 or 4 p. m. with globin insulin with zinc and a night meal with protamine zinc insulin.

11. Wilder, R. M., and Wilbur, D. L.: Diseases of Metabolism and Nutrition: Review of Certain Recent Contributions, Arch. Int. Med. 59: 329 (Feb.) 1937.
12. Lawrence, R. D.: Zinc-Protamine-Insulin in Diabetes, Brit. M. J. 1: 1077, 1939.

10. Reiner, L.; Searle, D. S., and Lang, E. H.: On the Hypoglycemic Activity of Globin Insulin, J. Pharmacol. & Exper. Therap. 67: 330, 1939.

MANAGEMENT OF INJECTIONS AND DIET
WITH GLOBIN INSULIN

Globin insulin with zinc is measured and injected like other insulins; since it is a clear fluid, agitation before filling the syringe is not necessary. It should not be combined in the same syringe with protamine zinc insulin. Mixtures of globin insulin with zinc and regular insulin have thus far not been attempted and would serve no apparent purpose. When the patient receives protamine zinc insulin in addition to globin insulin with zinc, the two forms of insulin are given by separate injections.

Globin insulin with zinc is administered forty-five to sixty minutes before breakfast. This interval before the meal allows for the lag of onset of the response of the blood sugar to globin insulin with zinc, which is somewhat less than two hours (Bauman,² Duncan and Barnes,⁵ Bailey and Marble⁶).

The number of units of globin insulin with zinc necessary for the control of diabetes is distinctly less than the dosage of protamine zinc insulin, according to Duncan and Barnes⁵ and in my experience. More

to warrant the attempt to treat ambulant diabetic patients with globin insulin with zinc, and I believe that this conclusion has been justified. No systematic comparative study between globin insulin with zinc and the other insulins was made. The patients were largely those coming as new cases for treatment. When protamine zinc insulin or regular insulin proved unsatisfactory in any subject, for one reason or another, globin insulin with zinc was tried and vice versa, which accounts for the few instances when a comparison between the various insulins is noted. In other words this presentation reports a trial of the feasibility of the routine use of globin insulin with zinc and not primarily its superiority or inferiority to other insulins.

There has been much dispute as to what criteria constitute good and poor control of diabetes, and an explanation of these terms as used on the charts is in order. The diabetic patients were checked on office visits by an analysis of evening and morning specimens of urine and a blood sugar determination. The regulation of the diabetes was classified as good if on two successive visits the urine samples were free from sugar

TABLE 2.—Patients with Mild Diabetes Requiring 30 Units of Insulin or Less

Case	Sex	Age	Insulin Units			Control Diabetes	Comment
			Regular	Protamine Zinc	Globin with Zinc		
30	♂	64	..	12	12	Good Good	Local reactions with protamine, none with globin
42	♂	49	..	30	..	Poor	Control diabetes fluctuates considerably with protamine, or protamine and regular mixtures. Globin because it acts for less than 24 hours in this case, is of distinct advantage for accurate adjustment
			15	10	18	Poor	
					26	Good	
						Good	
8	♂	39	..	22	..	Good Good	Morning headaches with protamine, none with globin
19	♂	61	..	8	20	Poor	Local reactions with protamine, none with globin
					20	Good	
Ten (10) cases	♂ and ♀	15 to 73	..	..	12 to 30	Good	These 10 patients probably would have done equally well with protamine

The control of the diabetes, as a rule, is equally satisfactory with protamine zinc insulin or globin insulin with zinc. There were 2 patients (30 and 19) with allergy to protamine zinc insulin who were not sensitive to globin insulin with zinc. Patient 8 had morning headaches that disappeared when protamine zinc insulin was replaced by globin insulin with zinc. In case 42 satisfactory control was accomplished by globin insulin with zinc after protamine zinc insulin alone or protamine zinc insulin and regular insulin mixtures failed.

Conclusion: In mild diabetes globin insulin with zinc is as effective as protamine zinc insulin and in some instances preferable to it.

precise statements are made by Andrews and Groat,⁴ who find that about three fourths of the protamine zinc insulin unitage is the requirement of globin insulin with zinc, and by Levitt and Schaus,⁷ who calculated the equivalent needs of persons with mild, uncomplicated diabetes as being 56 units of regular insulin, 33 of protamine zinc insulin and 22 of globin insulin with zinc, and of patients with severe, uncomplicated diabetes as 93 units of regular insulin, 65 of protamine zinc insulin and 39 of globin insulin with zinc.

Globin insulin with zinc calls for an extra feeding between 3:30 and 4 p. m. to check the low blood sugar developing at that time. Marks³ has been successful in eliminating this intermediate meal by distributing the starches throughout the day so that 20 per cent is taken at breakfast, 40 to 50 per cent at lunch and 30 to 40 per cent at dinner. Some patients welcome the opportunity to have "afternoon tea," while others, especially business men, regard it as a burden.

Material and Methods of This Study.—Nearly all the patients were managed by office visits. The one notable exception was the patient in table 5, who was hospitalized for an extensive operation and not because of his diabetes. The published observations on globin insulin with zinc appeared sufficiently detailed and extensive

or if only 1 of the 4 specimens, either an evening or a morning voiding, contained a small amount of dextrose, 0.6 per cent or less, and the other samples were clear. When these objectives could not be achieved, the control was designated as poor.

The diets prescribed contained comparatively low quantities of carbohydrate 130 to 150 Gm. per day. I have found such amounts of starch acceptable to the patient, and the control of the diabetes has been much more readily accomplished than when larger amounts of carbohydrate were eaten. Children, and persons engaged in manual labor, require a high carbohydrate intake. In the present series the children received such a diet. There were no subjects carrying out hard physical work.

Mild Cases of Diabetes Requiring 30 Units or Less of Insulin.—It is established that such patients are usually well controlled by a single daily injection of protamine zinc insulin. The reason for this is, as has been previously discussed, that small doses of protamine zinc insulin probably act for less than twenty-four hours. Fourteen patients with mild diabetes were treated with globin insulin with zinc (table 2). Ten of these in all likelihood would have done equally well with protamine zinc insulin, which was not tried. The

remaining 4 had diabetes in which protamine zinc insulin was not satisfactory, and recourse was had to globin insulin with zinc. There were 2 patients allergic to protamine zinc insulin who were not sensitive to globin insulin with zinc. Bauman² has stressed the infrequent sensitivity of human beings to globin insulin with zinc. One patient had morning headaches, which disappeared when protamine zinc insulin was replaced by globin insulin with zinc. In 1 diabetic patient satisfactory control was accomplished by globin insulin with zinc after protamine zinc insulin alone or protamine zinc insulin and regular insulin mixtures failed. It may be concluded that in persons with mild diabetes globin insulin with zinc and protamine zinc insulin are equally effective but that there are a few cases in which, because of certain idiosyncrasies, globin insulin with zinc is preferable to protamine zinc insulin and it is reasonable to assume that in the long run some instances will be forthcoming in which the opposite will hold true.

injection, which is exceedingly disappointing since it has become a prerequisite of successful insulin administration that a single injection in twenty-four hours and no more should be used. Tolstoi¹⁴ solves this problem by countenancing unlimited glycosuria, which some patients do not tolerate very well and only relatively few physicians versed in the intricacies of diabetes endorse. The desire for the achievement of proper regulation of severe diabetes by one daily injection of insulin has resulted in two schools of thought: one desires to formulate an ideal insulin that will fill the needs of most diabetic patients (mixture 3 parts of regular insulin to 2 parts of protamine zinc insulin, Ulrich;¹⁵ mixture 2 parts of regular insulin and 1 part of protamine zinc insulin, Colwell;¹⁶ modified protamine zinc insulin, 1 part of regular insulin to 1 part of protamine zinc insulin, p_H adjusted to 7.2, MacBryde¹⁷). The other is to grade the mixture of regular insulin and protamine zinc insulin so as to meet the

TABLE 3.—Patients with Severe Diabetes Requiring More Than 30 Units of Insulin and Treated with Globin Insulin with Zinc Only for a Considerable Period

Case	Sex	Age	Insulin Units			Control Diabetes	Comment
			Regular	Protamine	Globin		
9	♀	52	±20*	±20*	30+	Poor Poor	Daily adjustment insulin; attendant claims fewer reactions and less glycosuria with globin
35	♂	59	..	44	.. 36	Good Good	Hypoglycemic reactions with protamine, none with globin
10	♂	44	..	52	..	Good	Severe morning reactions with protamine, poor control with globin; good result with mixture of protamine and regular
			32	16	..	Poor Good	
15	♀	53	..	40	.. 40	Poor Poor	Same results as in preceding case
			22	11	..	Good	
32	♀	62	..	60	.. 42	Poor Good	Globin alone preferable to protamine alone
20	♀	27	24*	40*	.. 46 30	Poor Poor Good	Poor results with globin alone or protamine and regular by separate injections; good result with protamine and globin by separate injections
31	♀	55	..	50	.. 50	Good Poor	Insists that 2 doses of protamine, 25 units each, are the most satisfactory
36	♂	50	..	50	.. 65 38	Poor Poor Good	Single injections of protamine or globin yield poor results; combination of protamine and globin by separate injections satisfactory
Seven cases (7) ♂ and ♀		14 to 62	..	..	42 to 110	Good	Seven cases treated with large doses of globin with satisfactory results; other insulins not tried

* Indicates regular and protamine zinc insulin given by separate injections, otherwise as mixtures in the same syringe.
Some patients (3 cases) with severe diabetes react more favorably to globin insulin with zinc than to protamine zinc insulin and vice versa (1 case), many patients can be controlled only by mixtures of protamine zinc insulin and regular insulin or by dual injections of globin insulin with zinc and protamine zinc insulin (4 in this table; for additional ones see table 6); a single injection of globin insulin with zinc is often satisfactory (10 cases).

Patients with Severe Diabetes Requiring More Than 30 Units of Insulin Given Globin Insulin with Zinc Only (table 3).—Some patients with severe diabetes react more favorably to globin insulin with zinc than to protamine zinc insulin (3 patients) and vice versa (1 patient). Some patients can be controlled only by mixtures of protamine zinc insulin and regular insulin or by dual injections of globin insulin with zinc and protamine zinc insulin (4 patients¹³). In many instances a single injection of globin insulin with zinc is satisfactory (10 patients). Bauman² has published a number of protocols showing how large doses of globin insulin with zinc can control some diabetic patients very successfully over long periods.

Patients with Severe Diabetes Requiring Dual Injections: One of Protamine Zinc Insulin and One of Globin Zinc Insulin.—It has been appreciated ever since the introduction of protamine zinc insulin that many diabetic patients cannot be controlled by one daily

needs of the patient (Wilder,¹⁸ Peck,¹⁹ Sparks and John²⁰) or to give protamine zinc insulin and regular insulin by separate injections. The first is an unyielding procedure that benefits only the majority of patients with diabetes but not all, while the latter is flexible and can be adapted to every patient's metabolic demands. The universal application of this scheme is the more appealing of the two. I have found that the same pliable control of diabetes accomplished by adjusting the pro-

14. Tolstoi, E.: Newer Concepts in the Treatment of Diabetes Mellitus with Protamine Insulin, *Am. J. Digest. Dis.* **10**:247, 1943.
15. Ulrich, H.: Clinical Experiments with Mixtures of Standard and Protamine Zinc Insulins, *Ann. Int. Med.* **14**:1166, 1941.
16. Colwell, A. R., and Izzo, J. L.: Protamine Zinc Insulin Modified for Accelerated Action, *J. A. M. A.* **122**:1231 (Aug. 28) 1943.
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18. Wilder, R. M.: Clinical Diabetes Mellitus and Hyperinsulinism, Philadelphia, W. B. Saunders Company, 1940.
19. Peck, F. B.: Action of Insulins, *Proc. Am. Diabetes A.* **2**:69, 1942; Approximate Insulin Content of Extemporaneous Mixtures of Insulin and Protamine Zinc Insulin, *Ann. Int. Med.* **18**:177, 1943; Treatment of Uncomplicated Diabetes with Mixtures of Insulin and Protamine Zinc Insulin, *J. Indiana M. A.* **36**:340, 1943.
20. Sparks, M. I., and John, H. J.: The Clinical Use of Mixtures of Insulins, *Ohio State M. J.* **39**:226, 1943.

13. For additional instances see table 6.

portion of protamine zinc insulin and regular insulin in the same syringe can be attained when protamine zinc insulin and globin insulin with zinc are given at one sitting by separate injections about one hour before breakfast.

TABLE 4.—Office Treatment of Patient 37, Woman Aged 70 with Diabetes for Five Years

Date	Urinary Sugar, per Cent			Insulin Units		Comment
	P.	M.	A.	Pro- tamine	Globin	
Jan. 18	2.0	0.5		70	0	Very little sugar eliminated during the night (n. m. specimen) but much after meals (p. m. specimen) when protamine zinc insulin alone was used
Jan. 22	2.0	0.3		80	0	
Feb. 1	2.0	0.0		80	40	
Feb. 6	2.0	0.0		80	50	Gradual addition of globin insulin with zinc results in:
15	2.0	0.0		80	60	
25	0.0	0.0		80	80	Good control of postprandial glycosuria, while protamine zinc insulin continues to regulate the glycosuria occurring at night
March 4	0.5	0.0		80	80	
23	0.0	0.0		80	80	
31	0.2	0.0		80	80	No hypoglycemic reactions throughout

Diet: protein 81, fat 80, carbohydrate 134.
Protamine zinc insulin controls glycosuria during the night fast, but an added dose of globin insulin with zinc is required to check the postprandial daytime glycosuria.
Accurate control of diabetes accomplished by means of separate injections of protamine zinc insulin and globin insulin with zinc. It is probable that a well adjusted mixture of protamine zinc insulin and regular insulin in one syringe could have been equally effective.

A diabetic woman aged 70 had a small amount of sugar in the urine in the morning urine (0.3 per cent) and a considerable quantity in the evening specimen (2.0 per cent) while she was receiving 80 units of protamine zinc insulin (table 4). If the protamine zinc

TABLE 5.—Treatment of Patient 44, Youth Aged 18

Date, 1942	Fasting Blood Sugar, Mg. per 100 Cc.	Insulin Units	
		Protamine	Globin
December 21	115	60	20
22	...	60	20
23	...	50	10
24	125	40	30
25	...	30	50
26	...	30	50
27	...	30	50
28	160	30	50

Diabetes of 4½ years' duration; patient hospitalized for plastic operation of hip.

Rise in fasting blood sugar with diminution of protamine zinc insulin. Urine kept sugar free by compensatory increase of globin insulin with zinc. Diet constant. Urine practically sugar free throughout. No hypoglycemic reactions.

Reduction of protamine zinc insulin and replacement with globin insulin with zinc in preparation for a prolonged operation, so that during the period of fasting and nausea postoperatively only enough protamine zinc insulin remained active after discontinuance of globin insulin with zinc to allow for basic insulin requirements. Postoperative infusions of dextrose were controlled by supplementary administrations of globin insulin with zinc and regular insulin.

Flexible control of diabetes with protamine zinc insulin for regulation of the basic (fasting) insulin requirements and globin insulin with zinc for adjustment of the postprandial hyperglycemia. Mixtures of protamine zinc insulin and regular insulin could not have been as readily managed; three injections of regular insulin, one before each meal, would probably have been required to replace the single dose of globin insulin with zinc; protamine zinc insulin alone (which could control the diabetes) would have resulted in an excess of insulin on the day of fasting, that is, during and following the operation.

insulin was increased there was danger of hypoglycemia in the morning. In addition to protamine zinc insulin, increasing doses of globin insulin with zinc were resorted to and when, by dual injection, 80 units of protamine zinc insulin and 80 units of globin insulin with zinc were received by the patient she became sugar free in both evening and morning specimens and

remained so for a long time. Protamine zinc insulin took care of the fasting, nocturnal hyperglycemia, and globin insulin with zinc, acting for twelve to fifteen hours, supplemented the protamine zinc insulin in setting aside the postprandial glycosuria.

The advantages of resorting to globin insulin with zinc instead of protamine zinc insulin at times, so as to render the control of the blood sugar more readily governable to meet rapidly shifting requirements, is illustrated in table 5. Patient 44 had been on a dose of 60 units of protamine zinc insulin, more or less, for the perfect adjustment of his diabetes. The regulation held good while he was receiving a constant diet and was at bed rest. A prolonged period of fasting and emergency infusions of dextrose were contemplated incidental to the carrying out of a plastic operation on his hip. It was obvious that if the large dose of protamine zinc insulin was continued this insulin would

TABLE 6.—Dual Injections of Protamine Zinc Insulin and Globin Insulin with Zinc in the Management of Diabetes

Case	Age	Sex	Insulin Units		Control Diabetes	Comment
			Pro- tamine	Globin		
18	19	♀	20	10	Good	
43	40	♀	30	10	Variable	More satisfactory control with protamine-regular mixture
45	62	♀	20	10	Good	
3	78	♀	30	12	Good	
4	82	♀	18	14	Good	
28	48	♂	26	14	Good	
34	65	♂	18	16	Fair	Insists on very high carbohydrate diet
25	69	♀	40	18	Good	
22	53	♂	10	20	Good	
23	43	♂	40	24	Poor	Unwilling to try protamine-regular mixtures
27	71	♀	20	24	Good	
45	18	♂	44	24	Good	
21	67	♀	20	26	Good	
12	29	♂	40	28	Good	
10	64	♂	60	30	Good	
40	43	♂	40	34	Good	
36	50	♀	40	38	Good	
49	16	♀	44	38	Good	
24	16	♀	50	40	Good	Equally good with protamine-regular mixtures
44	18	♂	30	50	Good	
29	19	♀	50	50	Irregular	Equally poor with protamine-regular mixtures
37	70	♀	80	80	Good	

Patients whose diabetes was not successfully controlled by protamine zinc insulin or globin insulin with zinc alone.

Dual injections of protamine zinc insulin and globin insulin with zinc were given about forty-five minutes to one hour before breakfast. The success of this method of administering insulin is evident. It is possible that protamine zinc insulin and regular insulin mixtures would have achieved the same results.

in all probability cause hypoglycemia on the day, or days, of food abstinence, and also that it would not act rapidly enough to meet the hyperglycemia resulting from dextrose infusions. The prolonged, rigid effect of protamine zinc insulin that was advantageous under routine conditions was a distinct handicap when prompt adjustments to rapid fire variations in the insulin requirement were to be made.

Globin insulin with zinc, which acts for twelve hours more or less as a rule, was gradually substituted for the protamine zinc insulin. The rise of the fasting blood sugar from 115 to 160 in the course of eight days testifies to the fact that protamine zinc insulin in this case acted for more than twenty-four hours and globin insulin with zinc for a shorter period. When the insulin had been changed to 30 units of protamine zinc insulin and 50 of globin insulin with zinc it was thought that there was sufficient protamine zinc insulin to control the fasting tendency to hyperglycemia and that infusions of dextrose or ingested sugar and starches by

mouth could be compensated by the proper doses of short acting insulins, either regular or globin with zinc. All these ideas proved feasible and were successfully carried out. It becomes evident that the long commitments entailed by protamine zinc insulin are often welcome, while in the same patient, at other times, a shorter acting insulin, such as globin with zinc, is preferable.

It is gratifying to note how many diabetic patients (table 6) may be controlled with little or no difficulty by dual injections of protamine zinc insulin and globin insulin with zinc. It may very well be that these patients would have shown equally satisfactory effects with graduated mixtures of protamine zinc insulin and regular insulin. However, I have been under the impression that the separate administration of protamine zinc insulin and globin insulin with zinc yielded more predictable and uniform results than the blending of protamine zinc and regular insulin in one syringe.

SUMMARY AND CONCLUSIONS

From clinical trials I believe that globin insulin, as a twelve to fifteen hour insulin, is a distinct addition to the existing therapeutic means for the more accurate and efficient management of diabetes. It is particularly valuable first in regulating patients who have a rise of blood sugar after eating only, and not during the night while fasting, and, second, in the control of patients whose nocturnal, fasting blood sugar is normalized by a given dose of protamine zinc insulin and who require an additional daytime adjuvant to set aside postprandial glycosuria. While protamine zinc insulin alone or various combinations of protamine zinc insulin and regular insulin fulfil the purposes admirably, it is reassuring to have a second string to our bow. Without attempting intensive comparative studies of protamine zinc insulin and globin insulin with zinc I have found a few instances in which, because of certain idiosyncrasies, globin insulin with zinc was preferable to protamine zinc insulin, and it is reasonable to assume that in the long run the opposite will hold true.

There have been many objections to increasing the number of available insulins, principally for the reason that the management of diabetes would become too complicated for the grasp of the general practitioner and that specialists in diabetes would be necessary for the treatment of this disease. This may be true. An analogy may be found in the art of conducting anesthesia. At first no anesthetics were available, then two—ether and chloroform, usually dispensed by the junior intern, and now a bewildering array, managed, to every one's unquestioned satisfaction, by specialists. The handling of diabetes, without undue exaggeration, is fully as difficult as the guidance of anesthesia, and it is only reasonable that we might welcome even further additional varieties of insulin, provided they furnished help in perfecting the treatment of diabetes.

889 Lexington Avenue.

Sound Perception Through Bone Conduction.—That sound perception in persons with impaired hearing is aided by the age old method of the hollow hand behind the ear is undoubtedly based on the fact that bone acts as a sound conductor. This method may be improved by placing the index finger of the hand against the surface of the mastoid bone and the tip of the thumb against the tip of this bone. By using this modification, the conduction of sound is enhanced by bone contact.—Amberg, Emil: *The Rainbow*, June 1941.

MULTIPLE FAMILIAL CASES OF POLIOMYELITIS

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LOS ANGELES

AND

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In 1943, 721 patients with poliomyelitis were admitted to the Contagious Disease Unit of the Los Angeles County General Hospital. Of these, 9.29 per cent (67 persons) came from families with multiple cases. There were 22 families with 2 cases each, 5 families with 3 cases and 2 families with 4 cases.

There were 38 secondary cases. Thirty-one (81.6 per cent) occurred within eight days or less of the initial case, and it is unlikely that any considerable number of the secondary cases were infected through exposure to the primary cases. Six (15.8 per cent) occurred between nine and fourteen days after the initial case and may or may not have been infected through exposure to the primary cases. One case

TABLE 1.—Interval Between Initial and Secondary Cases

Days Interval After Initial Case	Number of Secondary Cases	Total Secondary Cases	Percentage of Total Secondary Cases
0	3		
1	2		
2	4		
3	7		
4	5		
5	1		
6	3		
7	2		
8	4	31	81.6%
9	1		
10	2		
11	2		
12	2		
13	1		
14	1	6	15.8%
5 weeks	1	1	2.6%
		38	100.0%

(2.6 per cent) occurred after five weeks, which is a much longer period than is usually given as the upper limit for incubation.

In the previous five year period (1938 through 1942) 403 cases were reported in the Los Angeles County Health Department area. Of these 5.4 per cent (22 cases) were in families with multiple cases, there being 11 families with 2 cases each.

This difference between 5.4 per cent and 9.29 per cent presents an interesting problem. Were more familial cases occurring in 1943, or were cases being diagnosed in 1943 that in previous years would not have been recognized? The probable answer depends on the fact that in 1943 patients were being diagnosed differently and also were being treated differently. This difference was mainly due to the application of the Kenny concept of the disease. Not only were cases diagnosed in 1943 by the finding of flaccid paralysis and other formerly acknowledged signs of poliomyelitis, but the mere presence of muscle spasm was taken into account.

From the Los Angeles County Health Department. This paper is submitted with the knowledge and consent of the Publications Committee of the Los Angeles County General Hospital. The material in it was collected and prepared in consultation with Dr. Paul Hamilton, chief of staff of the Acute Communicable Disease Unit of the General Hospital. The table of gradations of muscle spasm was contributed by Dr. Wayne McFarland. Miss Dorothy Graves, physical therapist at the General Hospital, furnished a large part of the statistical and case history data. Dr. Roy Gilbert, assistant Los Angeles County health officer, furnished the data regarding multiple familial cases of poliomyelitis in Los Angeles County in former years.

By muscle spasm is meant "a group of symptoms including fibrillary twitchings, hyperirritability of the muscle to stretching and a more or less toxic state of contraction of the muscle fibers which frequently cannot be overcome even by great force."¹ The muscles most frequently seen in spasm were the posterior neck muscles, the erector spinae group and the hamstrings. Table 2 explains the basis of classifying the spasms of these muscles.

As can be readily seen, severe degrees of active spasm are readily diagnosed. Mild degrees are often difficult to perceive and may be missed. A good knowledge of muscle anatomy and of the various normal ranges of motion of the back and extremities at different ages is very helpful. But the type of spasm characteristic of poliomyelitis may continue for weeks or months if untreated. This helps considerably in differentiating mild degrees of true poliomyelitis spasm from the muscle soreness and stiffness of a temporary nature which may accompany influenza, pneumonia, typhoid and other illnesses.

To determine the difference that muscle spasm as a diagnostic criterion made in the number of cases diagnosed, the 67 multiple familial cases were reviewed as carefully as possible in the light of diagnostic criteria used in prior years and divided into four groups. Studied in this way, it was found that there were 42 cases that would have been diagnosed in previous years, 8 that probably would have been, 12 that would not have been recognized and 5 that probably would not have been.

Similarly, the 29 families were divided into four groups. There were 12 families in which multiple cases would have been diagnosed in previous years, 7 families in which multiple cases probably would have been diagnosed, 6 families in which multiple incidence would not have been diagnosed and 4 families in which multiple incidence probably would not have been diagnosed. In this classification an instance of multiple familial incidence was taken to be where 2 or more cases in a family would have been readily recognized. A probable instance of multiple familial incidence was taken to be where 1 case would have been diagnosed and other cases probably would have been. An absence of multiple familial incidence was taken to be where only 1 member of a family would have been diagnosed. A probable absence of multiple family incidence was taken to be where 1 member would have been diagnosed and other cases probably would not have been recognized.

Of great value in confirming the diagnosis of poliomyelitis, whether the tentative diagnosis rested on muscle spasm alone or on other findings as well, were spinal fluid examinations. In all, spinal taps were done on 66 of the 67 patients. The 1 missed went directly into the respirator on admission and there was no question about the diagnosis. The spinal fluids were valueless in 2 cases because of bloody taps. Of the remaining 64, 52 (81.2 per cent) had definitely positive spinal fluids. A positive spinal fluid was taken to be one that had more than 10 cells per cubic millimeter, or a total protein above 65 mg. per hundred cubic centimeters of spinal fluid. Five patients (7.8 per cent) had questionably positive spinal fluids. A questionably positive spinal fluid was taken to be one having a total protein between 60 and 65 mg. By the method

used, 60 mg. was considered the upper limit of normal. Seven cases (10.9 per cent) were negative.

Of the 67 patients, 21 had only 2+ spasm. Of these 18 (85.7 per cent) had positive spinal fluids. Three were negative.

Of the 67 patients, 15 had only 1+ spasm. Of these 7 (46.6 per cent) had positive spinal fluids. Four (26.6

TABLE 2.—Gradations of Spasm

Posterior Neck Muscles (Patient Lying Supine)	
Degree of Severity	Physical Findings
Very severe 4+	Neck retracted or in extreme extension
Severe 3+	Patient is unable to raise head from bed
Moderate 2+	Head can be flexed 45 degrees
Slight 1+	Head can be flexed 90 degrees
None 0	Head can be flexed on chest
Erector Spinae Muscles (Patient Lying Supine with Legs Straight)	
4+	Back has lordosis, opisthotonos
3+	Patient is unable to raise shoulders from bed
2+	Back can be flexed 45 degrees; patient assumes tripod position
1+	Back can be flexed 90 degrees
0	Back can be flexed 135 degrees in adult and to knees if child
Erector Spinae Muscles (Patient Sitting with Legs Hanging Over Side of the Bed)	
4+	Patient is unable to sit up; lordosis
3+	Back can be flexed 45 degrees; patient assumes tripod position
2+	Back can be flexed 90 degrees
1+	Back can be flexed 135 degrees
0	Back can be flexed until forehead touches knees
Hamstring Muscles (Patient Lying Supine with Legs Straight)	
4+	Knees are flexed; patient is unable to straighten without pain
3+	Unable to raise legs from bed
2+	Straight leg raising 45 degrees
1+	Straight leg raising 75 degrees (may be normal in young adults)
0	Straight leg raising 90 degrees or beyond
Hamstring Muscles (Kernig Position, Patient Lying Supine with Thigh at 90 Degrees and Attempting to Extend Leg on the Thigh)	
4+	Knees are flexed; patient is unable to straighten without pain
3+	Unable to raise legs from bed
2+	Straight leg raising 45 degrees
1+	Straight leg raising 75 degrees (may be normal in young adults)
0	Straight leg raising 90 degrees or beyond
4+	Same as 4+ in straight leg raising
3+	Kernig 90 degrees (leg extended to 90 degrees on thigh)
2+	Kernig 135 degrees
1+	Kernig 165 degrees (may be normal in young adults)
0	Kernig 180 degrees

TABLE 3.—Diagnosis by Criteria of Prior Years

Sixty-Seven Multiple Familial Cases Diagnosed in 1913	
By Diagnostic Criteria of Prior Years (Before Kenny)	No. of Cases
1. Would have been diagnosed.....	42
2. Probably would have been diagnosed.....	8
3. Would have been unrecognized.....	12
4. Probably would have been unrecognized.....	5
Twenty-Nine Families with Multiple Cases Diagnosed in 1913	
By Diagnostic Criteria of Prior Years	No. of Families
1. Would have been diagnosed.....	12
2. Probably would have been diagnosed.....	7
3. Would have been unrecognized.....	6
4. Probably would have been unrecognized.....	4

per cent) had questionably positive spinal fluids. Four (26.6 per cent) had negative spinal fluids.

Of the 6 families in which multiple cases would not have been diagnosed in previous years, 3 instances of familial incidence were definitely confirmed by positive spinal fluid findings in both cases in each family. One instance was equivocally confirmed by a questionably positive spinal fluid in 1 member of the family and a positive spinal fluid in the other. Two instances were not confirmed by spinal fluid findings.

1. Cole, W. H.; Pohle, J. S., and Knapp, M. E.: Kenny Method of Treatment for Infantile Paralysis, Publication 40, National Foundation for Infantile Paralysis, Inc., 1942.

Of the 4 families in which multiple cases probably would not have been diagnosed in previous years, 1 instance was definitely confirmed by positive spinal fluid findings in both members of the family. Two instances were equivocally confirmed by a positive spinal fluid in 1 member of each family and a questionably positive spinal fluid in another member of each family. In 1 equivocally confirmed instance the questionably positive spinal fluid occurred in a member with very severe flaccid paralysis. The remaining instance was not confirmed by the spinal fluid findings. It might be said that the cases unconfirmed by spinal fluid findings or equivocally confirmed by questionably positive spinal fluid findings and without other suggestive findings aside from persistent muscle spasm were not cases of poliomyelitis. This may be true, and until an easy, reliable laboratory aid is discovered to establish the diagnosis no one will be able to prove these cases one way or the other. These cases were diagnosed poliomyelitis because of a strongly suggestive history and because the muscle spasm persisted for weeks after the temperature had become normal.

To determine the reason why the mildly involved were being sent to the hospital was an interesting problem. Ordinarily these cases would have gone unrecognized. The answer became apparent when the severity of the illness in the first member of each family was studied. In 25 of the 29 families (86.2 per cent) the first case showed symptoms that would have been readily diagnosed in previous years. In 1 of the remaining 4 families the first case was such that it probably would have been diagnosed in previous years. In another of the remaining families, all 4 cases in the family were admitted when the third member to come down developed symptoms of flaccid paralysis. In only 2 families (of 2 siblings each) were the symptoms so mild that the cases probably would have been missed in previous years, and the existence of an epidemic in the community doubtless had its influence in arousing a suspicion of the presence of the disease. It is apparent that the discovery of a severe case in the family was the usual cue for the study and diagnosis of subsequent milder ones.

COMMENT

The Kenny concept of poliomyelitis has given us a new approach to the diagnosis as well as to the treatment of the disease. With it we are in a position to diagnose cases on the basis of very mild physical findings. The finding of 29 families with multiple cases is significant, not because a much larger proportion of such cases than usual actually occurred but because a means was at hand for diagnosing mild cases that allowed multiple cases within families to be recognized more easily. Even this year undoubtedly many cases were missed, since the cue for diagnosing a great majority of the mild cases was the presence of a severe case in the family. In families with 1 or more cases of poliomyelitis all of which were mild, medical counsel was probably seldom called, and the true nature of the illness was not even suspected.

The lack of recognition of these mild cases may account in some measure for the difference between the large number of adults who have protective substances in their blood against poliomyelitis virus and the comparatively small number who have a history of having had the disease. Unrecognized, and therefore untreated, one-sided spasm may account for the frequent orthopedic problems of unexplained scoliosis and leg shortening.

SUMMARY

1. Seven hundred and twenty-one patients with poliomyelitis were admitted to the Contagious Disease Unit of the Los Angeles County Hospital in 1943. Of this number 9.29 per cent were due to multiple cases in families.

2. There were 22 families with 2 cases each, 5 families with 3 cases each and 2 families with 4 cases each, for a total of 67 cases.

3. The apparently increased incidence of multiple familial cases was probably in great part due to the adoption of the Kenny concept of the disease, which gave a new criterion for diagnosis, namely muscle spasm. By this means mild cases were diagnosed that in previous years would not have been recognized.

4. In a very large majority of instances attention was attracted to the mild cases by the presence of a severe case in the family.

5. Definitely positive spinal fluid findings confirmed the diagnosis in 81.2 per cent of the cases, and questionably positive findings in 7.8 per cent.

808 North Spring Street.

Clinical Notes, Suggestions and New Instruments

A CASE OF KALA-AZAR

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Passed Assistant Surgeon and Passed Assistant Surgeon (R),
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Kala-azar is an infectious disease characterized by irregular, intermittent and long-continued fever, leukopenia, progressive anemia, enlargement of the spleen and liver, gradual loss of strength and emaciation. It is caused by the protozoon *Leishmania donovani*, and these organisms are found in the reticuloendothelial cells of the spleen, liver, bone marrow and other tissues. In heavily infected patients they may be found in the mononuclear leukocytes of the peripheral blood.

Leishmania donovani grows on N. N. N. culture medium kept at 22 C., and in culture flagellate forms are present. These forms have been found in the midgut and pharynx of certain species of the sandfly *Phlebotomus*, which is apparently the insect vector involved.

Kala-azar is widespread in the Eastern Hemisphere. The most heavily infected areas are in eastern India, in the provinces of Assam, Madras, Bengal and Bihar, and in China north of the Yangtse River. It is also found in most countries bordering on the Mediterranean, especially in Italy and Greece, in western Africa, in the Sudan and in Abyssinia, Iraq, southeastern Russia and Russian Turkestan. Recently cases have been found in the Western Hemisphere in Brazil, Paraguay and Argentina.

The patient, a 23 year old Indian seaman, was admitted to the United States Marine Hospital at Ellis Island, N. Y., on Aug. 16, 1943 complaining of fever and weakness. He had been in the province of Assam from February to October 1942 and had sailed from Calcutta in January 1943 in good health. Two weeks later, at a port in East Africa, he became ill with fever but was able to continue working. The fever continued, and a few days later, on arriving at Durban, South Africa, he was sent to a hospital, where he was treated for malaria. After twelve days' sickness he was discharged feeling much improved. About eight weeks later, exacerbation of fever recurred which lasted for one week. Approximately six weeks before he entered this hospital the fever returned and was present every afternoon. His weakness gradually increased and was severe at the time of his admission to this hospital.

Dr. Henry E. Meleney, professor of preventive medicine, and Dr. Harry Most, assistant professor of preventive medicine, New York University College of Medicine, made suggestions for treatment in this case.

The patient was moderately emaciated and appeared to be chronically ill. His height was 62¼ inches (158 cm.) and his weight was 97 pounds (44 Kg.). The tonsils were enlarged and covered with a yellowish exudate, and the lymph nodes of the neck were slightly enlarged. The abdomen was flat, and the lower border of the spleen extended 10 cm. below the costal margin. The edge of the liver was palpated 4 cm. below the costal margin, and it was slightly tender. The temperature was 37.5 C. (99.5 F.); urinalysis and a roentgenogram of the chest revealed normal conditions. There were 3,970,000 red blood cells, a hemoglobin content (Sahli) of 75 per cent and 3,700 white blood cells, of which 55 per cent were polymorphonuclear neutrophils, 35 per cent lymphocytes, 6 per cent mononuclears, 3 per cent transitional forms and 1 per cent eosinophils. Repeated blood smears were examined for malarial parasites, but none were found. Stool examinations revealed ova of *Ascaris lumbricoides* and ova of *Trichuris trichiura*. The Wassermann reaction was anticomplementary on three occasions and the Kahn reaction negative.

During the patient's first three days in the hospital his temperature varied between 0.2 and 0.4 degree above normal, but on August 19 it suddenly rose to 38.6 C. (101.5 F.). It returned to normal the following day and remained normal until September 8, when it suddenly rose to 38 C. (99.4 F.); on that date the diagnosis of kala-azar was established by splenic puncture.

Results of three presumptive globulin tests for kala-azar were positive. The first test, the water precipitation test, was performed by adding 0.02 cc. of whole blood (by means of a Sahli hemoglobin pipet) to 0.6 cc. of distilled water. A flocculent precipitate settled within fifteen minutes. The second test, the formol-gel or aldehyde test of Napier, was done by adding 1 drop of solution of formaldehyde diluted 3:10 to 1 cc. of serum. Within ten minutes the serum became solid and in appearance resembled the white of a hard-boiled egg. This test is considered as diagnostic of kala-azar if the serum solidifies and

nounced turbidity on shaking and the separation of a precipitate within twenty-four hours as a white layer on the bottom of the tube indicate a positive specific reaction in 95 per cent of cases.

Aspiration of sternal bone marrow was done on August 24 and again on September 1, but *Leishmania donovani* was not



Fig. 2.—Smear from splenic puncture showing intracellular *Leishmania donovani*



Fig. 1.—Smear from splenic puncture, showing *Leishmania donovani* extracellularly.

found. During this time the patient's intestinal worm infections were treated with 15 grains (1 Gm.) of hexylresorcinol. Repeated examinations of the stool for ova failed to reveal their presence. On September 8 splenic puncture demonstrated numerous *Leishmania donovani* organisms in all smears.

One of the most efficacious drugs for the treatment of kala-azar is neostibosan, a pentavalent antimony compound.¹ Treatment with neostibosan was started on September 8, and the patient received 0.1 Gm. intravenously, the drug being dissolved in 3 cc. of sterile distilled water and given very slowly. On the following day he received 0.2 Gm. intravenously in 6 cc. of distilled water, and on September 10 and again on September 11 0.3 Gm. was given in 9 cc. of sterile distilled water. Treatment was omitted inadvertently on September 12, but on September 13 0.3 Gm. was given intravenously in 9 cc. of sterile distilled water. The temperature varied daily between 36 and 38.4 C. (96.8 and 101.1 F.) from September 8 to 13. On September 13 the patient suddenly began to have abdominal pain and bloody diarrhea. He was given 500 cc. of plasma, after which urticaria appeared and he had a chill that lasted for approximately fifteen minutes. Early the next day the abdominal pain became more severe, was colicky and was localized in the upper part of the abdomen. On September 14 he had twelve bloody, watery stools, and the following day his temperature rose to 38.6 C. (101.5 F.). He was dehydrated, was unable to eat, complained continually of the severe abdominal pain and was acutely ill. He was treated with sedation and Kapectate² and given parenterally 2,000 cc. of 5 per cent dextrose in isotonic solution of sodium chloride and 500 cc. of whole citrated blood. The diarrhea gradually subsided, and after two days the temperature returned to normal. The stools

1. A brand of ethylstilbamine-Winthrop.

2. A preparation made by the Upjohn Company.

becomes white within one hour. The third test, the neostibosan test, was done by adding 3 or 4 drops of serum to 2 cc. of a 4 per cent aqueous solution of neostibosan. On shaking, turbidity occurred, and within one hour a white precipitate covered the bottom of the tube, leaving the upper part of the solution transparent. The appearance of more or less pro-

were examined repeatedly for *Endamoeba histolytica* and cultured for dysentery bacilli, but none were found. The white blood cell count during this period of acute illness ranged between 4,000 and 5,000 cells with a normal differential count; on September 17 there were 3,800,000 erythrocytes with 74 per cent hemoglobin (Sahli). On September 22, 24 and 27 the patient was given intravenously 0.05 Gm. of neostibosan dissolved in 10 cc. of sterile distilled water. Every third day thereafter he received neostibosan intravenously diluted in 10 cc. of distilled water. The dose was gradually increased to 0.3 Gm. and twenty injections (4 Gm.) were administered during a period of fifty days.

On Oct. 21, 1943 another splenic puncture was done. *Leishmania donovani* was not found on the smears of the splenic pulp, and cultures on N. N. N. medium showed no growth after twenty-one days.

The patient improved rapidly and gained 10 pounds (4.5 Kg.) during the course of treatment. He felt well and had no complaints except for poor vision in his left eye and bleeding from the gums and the nose. No bleeding points were found in the nose and mouth, and the bleeding and clotting time were within normal limits. The loss of vision in the left eye was caused by an extensive retinitis pigmentosa, which probably was not related to his infection. The erythrocyte count was 5,060,000, with 89 per cent hemoglobin (Sahli). The leukocyte count was 5,800, with a normal differential smear.

On the day of discharge, October 20, the spleen and the liver were no longer palpable. The formol-gel and the neostibosan reactions were positive. The sedimentation rate was 21 mm. (Cutler method) in an hour.³

SUMMARY

1. In a case of kala-azar the diagnosis was made by finding *Leishmania donovani* organisms in smears of splenic pulp.

2. Treatment with a pentavalent antimony compound brought about prompt clinical improvement.

3. Treatment was complicated by an exacerbation of fever, abdominal pain and bloody diarrhea, which may or may not have been caused by the administration of neostibosan.

A SMALL EFFICIENT HOOD FOR OXYGEN THERAPY

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PHILADELPHIA

It is our purpose in this report to describe a modification of the oxygen tent principle which will obviate many of the disadvantages of the large oxygen tent, namely low maximum oxygen concentrations, inaccessibility of the patient, difficulty of application, and psychic phenomena such as claustrophobia and feeling of suffocation. Much remains to be done before the physiologic aspects of oxygen therapy are completely established. Meanwhile, progress in therapy with oxygen is hindered by the too complete reliance by the clinician on equipment whose chief merit is long usage.

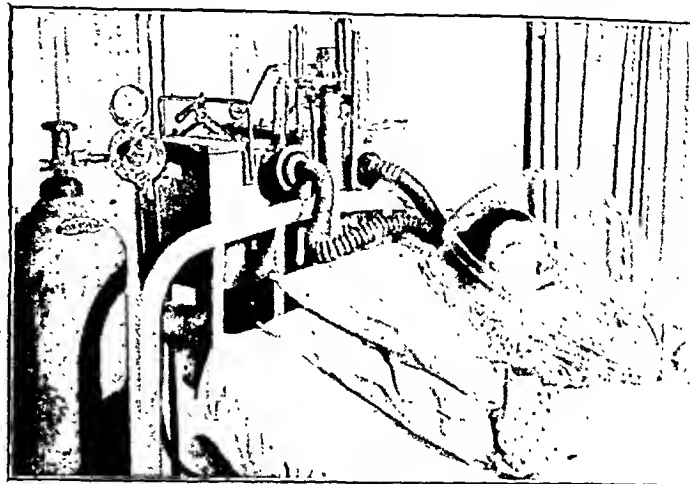
It appears that a small hood or helmet enclosing the head alone might overcome several of the disadvantages inherent in the large oxygen tent. The principle of such a hood is not new. Similar means have been used previously for oxygen administration.¹ However, a review of the available literature revealed nothing to compare closely with the equipment to be described.

This oxygen therapy unit comprises a small, completely transparent hood enclosing the head and neck, designed to be removably attached by outlet and inlet tubes to the air conditioning machine of the standard oxygen tent and to be snugly sealed about the neck of a patient by means of an attached skirt.

The shape of the oxygen hood is that of an eggshell bisected longitudinally. It is constructed of a tough, colorless plastic

and is therefore completely transparent. The smooth dome of the hood has only minor refractive errors, making it almost invisible to a patient within it. The interior is sufficiently large to permit free motion of the head in all directions.

To the rim of the hood is attached a "skirt" of thin "pliofilm" or oiled silk. This may be easily replaced when it becomes worn. Obviously this skirt is merely a snugly fitting drape which prevents gross leakage of gas about the neck.



Small efficient hood for oxygen therapy.

Two long corrugated rubber inlet and outlet tubes connect the hood with the air conditioning unit. By means of a small baffle plate the air current into the hood is deflected upward and carried forward along the curve of the dome.

Circulation, cooling, humidification, carbon dioxide absorption and addition of oxygen to the respired gases is accomplished by the use of the air conditioning unit of a standard oxygen tent. This unit has been changed in only one respect. An additional rheostat has been added to the circuit to slow the motor down to any desired speed. The adaptability of the hood to this common type of equipment obviates the necessity of specialized equipment and is of considerable economic importance.

The air exhaled by the patient is drawn out the back of the hood via the flexible outlet tube into the air conditioning unit, where it is cooled and humidified, carbon dioxide is absorbed and oxygen is added. From the cooling chamber it is blown through the corrugated inlet tube into the hood, where it follows the dome of the hood anteriorly.

The technic for use of the oxygen therapy hood is extremely simple. With oxygen flowing at the desired rate and the circulating fan turned on, the hood is placed over the head of the patient in such a way that it rests on the pillow posteriorly and on the chest anteriorly. The patient therefore lies with his head on a pillow and is in contact with the hood at only one point, the chest.

The pliofilm skirt is made with an overlapping split posteriorly. The free edges thus formed are crossed behind the patient's neck, drawn snugly on each side and crossed again

Oxygen Concentration

Liters of Oxygen per Minute	Average Oxygen Concentration
4.....	50-55%
6.....	60-70%
8.....	75-80%
10.....	80-89%

at the front of the neck. The anterior portion of the skirt is then folded once under the hood, completing the application. This provides a comfortable, adequate seal which can be immediately undone, even by the patient. The application is identical for patients in the Fowler position. It is unnecessary to point out that proper application of any device for oxygen therapy contributes greatly to its efficiency.

In using this hood, the general considerations of oxygen flow and air circulation are decisions to be made by the clinician in his judgment of the case. Thus, in certain cases it may be desirable to decrease the air temperature within the

3. Since this paper was written we have received word from a New Zealand hospital, where the patient was examined, that a formol-gel test was negative, and the blood sedimentation rate by Wintrobe's method was 10 mm. per hundred cubic centimeters in one hour.

From the Medical Clinic of the Hospital of the University of Pennsylvania.

1. Benedict, F. G.: *New England J. Med.* **203**: 150, 1930. Finc, J.; Hanks, B. M.; Sears, J. B., and Hermanson, L.: *Ann. Surg.* **103**: 375, 1936. Barach, A. L.: *New York State J. Med.* **37**: 1095, 1937.

hood by speeding the circulation of gas through the ice chest. It must be mentioned here that with some machines increasing the force of circulation of gases in the system has been shown to lower the maximum oxygen concentration reached with a given oxygen flow. Therefore, to attain maximum concentration, the speed of the motor should be slowed so that the temperature within the hood is just cool enough for comfort.

In the accompanying table are listed the concentrations reached within the oxygen hood at various rates of oxygen flow. This small oxygen hood has been used in the University Hospital for four months. Over 50 patients have been treated for periods of time ranging from several hours to ten days. They represent a cross section of the various pathologic conditions requiring oxygen therapy seen in a general hospital. Pneumonia, acute coronary occlusion and congestive heart failure or a combination of these made up the largest group of patients. Postoperative patients, shock, asthma and a number of other conditions were also treated in this manner. The hood is tolerated very well by almost all the patients. Only 2 could not tolerate it, and 1 of these was a patient with a violent cardiac psychosis. Many of the patients have requested that oxygen therapy be reinstituted after it has been discontinued by the ward staff.

This small oxygen hood has advantages other than high oxygen concentration and its acceptability to the patient. It is safe. Mistakes in its application or in the oxygen supply will not harm the patient. One of us (L. G.) has remained in the tent for one hour with the motor on without any oxygen being supplied to the air conditioning unit; no symptoms or signs of anoxia developed. One patient remained in the tent for three hours without oxygen being supplied; no harmful effects could be detected.

The hood is easily applied and taken care of by the nursing staff, and its operation requires considerably less care than is needed by a large tent. It has made the nursing of acutely ill patients who need oxygen a great deal easier. Such procedures as intravenous injections of fluids and medications, enemas, bed baths, bedside chest films and electrocardiography can be done without removing the patient from the hood. The patient's chest and abdomen are accessible for examination, and his head and face are easily inspected. The visibility from within the hood is excellent and without any distortion. Patients who are not acutely ill can read or write while in the tent, and none have developed symptoms of eyestrain.

Three factors contribute largely to the patient's feeling of comfort and safety: The whole tent is very light and no weight rests on the patient's head, the visibility is excellent and the tent can be removed by the patient at a moment's notice. These have overcome one of the theoretical objections to such an apparatus, the belief that many would develop claustrophobia in such a confined space. This has not been true, for only 1 patient has complained of this reaction.

There are certain limitations which must be realized. Any of the present types of apparatus designed for the therapeutic administration of oxygen suffer in efficiency if they are improperly or poorly handled, and, although in clinical use the small hood gives uniformly good results with a minimum of nursing care and has obviated the need of special technicians or special duty nurses, its efficiency will suffer with poor care.

Patients who are vomiting frequently and those who must expectorate continually are not easily handled in the hood. The latter objection does not hold true for cases in which expectoration and cough can be minimized by sedation, as in lobar pneumonia.

If the motor of the air conditioning unit should be turned off while the patient is in the hood, carbon dioxide rapidly accumulates. Within five minutes the patient will become quite uncomfortable. This has little danger for the conscious patient; however, if this should occur with a comatose patient who is unable to get out of the hood, serious consequences might result. Fortunately, this is a complication which could happen only with grossly inefficient handling of the equipment.

In comparing this small hood with the large oxygen tents in use today, the greatest single advantage for the former is the fact that oxygen concentrations can be maintained that are far above the theoretical maximum concentrations obtained in the large tents. It is generally supposed that, at a flow of

from 6 to 8 liters per minute, concentrations ranging from 40 to 60 per cent are obtained in the large oxygen tents. However, it has been our experience and the experience of others² that such concentrations are seen only when special duty nursing care is given the patient. In fact, in this hospital, with ward nursing care, a maximum concentration of 40 per cent is seldom seen unless the oxygen flow is increased to from 12 to 16 liters per minute. The figures quoted for the small hood represent concentrations obtained when the hood was being operated by the ward nursing staff, and they do not represent controlled experimental runs on quiet, cooperative patients.

In comparison with oxygen administration by nasal catheter, the hood has the advantage of being far more comfortable and acceptable to the patient, especially if therapy must be prolonged more than a few hours, and higher oxygen concentrations can be administered by means of the hood.* A well placed nasal catheter is capable of providing alveolar concentrations of about 60 per cent oxygen³ (comparable to inspired air oxygen concentrations of approximately 65 to 68 per cent) at a flow of 6 to 8 liters oxygen per minute. However, the effectiveness is dependent largely on the proper insertion of the catheter.

The hood has certain advantages over the face masks in popular use at this time. It is more acceptable to the patient and more comfortable if used for periods of twenty-four hours or longer. Furthermore, in the majority of conditions which call for oxygen therapy, concentrations of 70 to 80 per cent are entirely adequate for clinical purposes, barring acute surgical, anesthetic and traumatic emergencies where 100 per cent oxygen is of great value.

SUMMARY

1. A small oxygen hood, fitting about the head and neck of the patient, can be adapted by means of tubing to the air conditioning units used by most of the large oxygen tents.
2. Its operation and principle are similar to those of the large oxygen tents.
3. In clinical use, oxygen concentrations of from 60 to 88 per cent can be reached and maintained at oxygen flows of from 6 to 10 liters per minute.
4. The hood is well tolerated by the majority of patients.
5. Advantages over the large tent include higher oxygen concentration, greater accessibility of the patient for therapeutic measures and examination, and greater ease of nursing care.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D., Secretary.

SULFADIAZINE (See New and Nonofficial Remedies, 1943, p. 169).

The following dosage forms have been accepted:

THE Wm. S. MERRELL COMPANY, Cincinnati

Tablets Sulfadiazine: 0.5 Gm.

THE SMITH-DORSEY Co., Lincoln, Neb.

Tablets Sulfadiazine: 0.1 Gm. and 0.5 Gm.

WINTHROP CHEMICAL Co., INC., New York

Tablets Sulfadiazine: 0.5 Gm.

SULFADIAZINE SODIUM (See New and Nonofficial Remedies, 1943, p. 188).

The following dosage form has been accepted:

LEDERLE LABORATORIES, Pearl River, N. Y.

Ampuls Solution Sodium Sulfadiazine 25% W/V: 10 cc. Each cubic centimeter contains sodium sulfadiazine 2.5 Gm. in distilled water.

2. Rosenblüth, M. B., and Block, M.: *Oxygen Therapy Without Soda Lime*, J. A. M. A. 98: 396 (Jan. 30) 1932.

3. Roventine, E. A.; Taylor, I. B., and Lemmer, K. E.: *Anesth. & Analg.* 15: 10, 1936.

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SATURDAY, JUNE 17, 1944

A TABLET EMERGENCY RATION FOR LIFEBOATS AND RAFTS

A man who ingests ample water but not food can, according to Ivy,¹ survive twenty to thirty days, provided he is not subjected to physical strain to which fasting renders him unduly susceptible. The maximum time of survival of a person completely deprived of water rarely exceeds ten to fourteen days, even under the most favorable circumstances. The maximum recorded period of survival at sea without water is eleven days. When the daily intake of water is limited to less than 500 cc., the ingestion of a relatively small amount of carbohydrate and fat will maintain an otherwise starving person in better condition than if this food was replaced with an equivalent weight of water. Under certain conditions of shipwreck the person is likely to die in a short time from exposure to cold. In such cases food might be of more importance than water in prolonging life.

The emergency ration to meet the requirements, according to Ivy and his associates, should be concentrated, furnishing a maximum number of calories in the allotted space. It should not cause nausea or vomiting and should consist of a food substance which can be swallowed with a minimum of difficulty when the mouth is dry and which will not cause subsequent accentuation of thirst. Assimilation of the ration should be accompanied by production of a maximum volume of water of oxidization. Excretion of its metabolic products, nitrogen and inorganic salts, should entail loss of a minimum volume of urine. The components of the ration should lend themselves to easy and equal distribution to the individual survivors on a lifeboat or raft. The constituents should remain unaffected by storage for long periods at high temperatures frequently encountered in aircraft parked in the sun or in lifeboats stowed on a ship's boat deck.

A reevaluation of the problem of equipping emergency kits became necessary when, in the spring of 1943, two satisfactory methods of rendering sea water potable by chemical demineralization were developed. Either of these methods increased by at least four to six times the volume of water potentially available in a given space. The authors have developed a "tablet emergency ration" whose three food components are sucrose-citric acid, sucrose-lipid-citric acid and sucrose-malted milk tablets. The sucrose-lipid-citric acid tablets contain slightly over 20 per cent of fat. The inclusion of fat in a ration is desirable because fat is the most concentrated source of calories available and, when oxidized in the body, produces more water than any other food. The addition of fat to sugar renders the former less nauseating. The citric acid increases the flow of saliva and thus facilitates dissolving of the tablet in the dry mouth.

The tablet emergency ration was the only food furnished to eighteen volunteers who spent four days on pneumatic life rafts under tropical conditions in the Gulf of Mexico in July 1943. The subjects received up to 340 calories of the ration, or 75 mg. daily, during the four days. The relative amounts of each item issued were, by weight, four parts of sucrose-citric acid tablets, two parts of sucrose-lipid-citric acid tablets and one part of sucrose-malted milk tablets. Although the daily fluid intake was less than 500 cc., evaporative water loss was at a minimum and thirst was not a general complaint. All three types of tablets, particularly the sucrose-lipid-citric acid tablet, were received with general approval. Hunger was satisfied.

Two factors were operating which commonly reduce the appetite of survivors to a minimum, a tendency to seasickness and incipient dehydration. Butler² observed that a daily intake of 150 Gm. of his butter-scotch ration seemed a satisfactory allowance for these conditions. In view of his results and those of the Naval Medical Research Institute at the trials in the Gulf of Mexico, the recommended daily allowance has been set at 150 Gm. per man, supplying about 690 calories. On the basis of the emergency craft's rated capacity, 75 to 150 Gm. of the ration should be stowed for each man for each day of the maximum number of days expected to pass before rescue.

The advantages of this tablet emergency ration are that it is compact, contains only small amounts of sodium chloride and protein and can be ingested with a minimum of difficulty when the mouth is dry. The tablet is recommended for use on life rafts and lifeboats and in other situations where it is desired that a concentrated ration be available for use over a limited number of days.

1. Ivy, A. C.; Fletcher, Palmer H.; Consolazio, W. V.; Pace, Nello, and Gerrard, Elizabeth J.: A Tablet Emergency Ration for Life-Boats and Rafts, U. S. Nav. M. Bull. 42: 841 (April) 1944.

2. Butler, A. M., quoted by Ivy.¹

THE RH BLOOD TYPES

As Landsteiner and Wiener¹ have shown, serums for testing for the Rh blood factor can be produced at will by immunizing guinea pigs with the blood of rhesus monkeys. The guinea pig serums all give parallel reactions and agglutinate the bloods of about 85 per cent of all white persons. Anti-Rh serums can also be obtained from human beings who have had hemolytic transfusion reactions² or given birth to infants with erythroblastosis fetalis.³ While the reactions of the human serums closely resemble those of the guinea pig antirhesus serums, the parallelism is not always perfect, and recent work has revealed that there are three distinct varieties of human anti-Rh agglutinins. One variety of human antiserum, which gives identical reactions with the antirhesus serums, is designated standard anti-Rh or simply anti-Rh₀. The second variety agglutinates the bloods of only 70 per cent of all white persons and is designated anti-Rh₁.⁴ The third variety gives only about 30 per cent positive reactions and is designated anti-Rh₂.⁵ The situation is further complicated by the existence of two additional varieties of human anti-Rh serums containing more than one sort of anti-Rh agglutinin; one serum contains the two agglutinins anti-Rh₀ and anti-Rh₁, gives about 87 per cent positive reactions and is designated simply anti-Rh', while the other contains agglutinins anti-Rh₀ and anti-Rh₂ and is briefly designated anti-Rh''.

These facts have been summarized in a report by Wiener,⁶ who points out that with the aid of the three agglutinins anti-Rh₀, anti-Rh₁ and anti-Rh₂, not merely a single Rh factor but instead five sorts of Rh agglutinogens can be identified. According to a theory proposed by him, these agglutinogens and the Rh negative type are inherited by means of a series of six allelic genes named *Rh₁*, *Rh₂*, *Rh'*, *Rh''*, *Rh₀*, and *rh* respectively, after the agglutinogens which they determine. Under the theory, eight Rh blood types should exist, and of these all but the rarest type (*Rh'Rh''*, with a calculated frequency of only 1 in 10,000) have actually been encountered. Among white persons in New York City the types have the approximate distribution 13 per cent Rh negative, 50 per cent Rh₁, 15.5 per cent Rh₂, 17 per cent Rh₁Rh₂, 2.5 per cent Rh₀, 1.5 per cent Rh' and 0.5 per cent Rh''. By way of contrast, Wiener,

Sonn and Belkin⁷ found that among Chinese there are only about 1 per cent Rh negative individuals, while among Negroes the Rh₀ type attains as high a frequency as 40 per cent.

In a recent paper these authors⁸ have subjected the theory of six allelic genes to a critical test by investigations on a series of 97 families with 275 children. Only a single apparent exception to the laws of heredity under the theory was found, and this involved a husband of type N whose supposed child belonged to type M, so that the assumption seems justified that the child in question is illegitimate. In view of these family data, as well as the results obtained in the study of mother-child combinations and the statistical analysis of data on the distribution of the Rh blood types, the theory of six allelic genes appears to be firmly established. Therefore the medicolegal application of the Rh blood types in cases of disputed parentage is justified, provided suitable potent reagents are available. The use of the Rh tests in such cases, with the A-B-O groups and M-N types, raises the chances of excluding parentage from about 33 per cent to almost 45 per cent. In the paper a case is described in which the older tests failed to exclude a man, while the Rh tests proved that he was not the father of the child in question. A second medicolegal application of the Rh tests is for the individual identification of blood stains. Since the blood groups, subgroups and M-N types distinguish 18 sorts of human blood, the Rh types multiply this seven times, so that now as many as 126 varieties of human blood can readily be differentiated. While this still does not approach the vast number of varieties of cattle blood that have been identified,⁹ it is a step in the right direction.

In clinical medicine the Rh types serve to explain a certain number of the hitherto puzzling instances of hemolytic transfusion reactions in Rh positive patients and the occurrence of erythroblastosis fetalis in certain Rh positive infants with Rh positive mothers.¹⁰ In the cases in which isoimmunization has occurred between different Rh blood types, the use of Rh negative blood is indicated for the same reason that group O blood can be used for individuals of groups A, B and AB in ordinary blood transfusions. The relation of the so-called Hr¹¹ or St¹² factor to the various Rh blood types has been clarified by the recent work of Race and his associates.¹³

1. Landsteiner, K., and Wiener, A. S.: Studies on an Agglutinin of Human Blood (Rh) Reacting with Anti-Rhesus Sera and Human Isoagglutinins, *J. Exper. Med.* **74**: 309 (Oct.) 1941.

2. Wiener, A. S., and Peters, H. R.: Hemolytic Reactions Following Transfusions of Blood of the Homologous Group, with 3 Cases in Which the Same Agglutinin Was Responsible, *Ann. Int. Med.* **13**: 2306 (March) 1940.

3. Levine, P.; Burnham, L.; Katzin, E. M., and Vogel, P.: The Role of Isoimmunization in the Pathogenesis of Erythroblastosis Fetalis, *Am. J. Obst. & Gynec.* **42**: 925 (Dec.) 1941.

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5. Wiener, A. S., and Sonn, E. B.: Additional Variants of the Rh Type, Demonstrable with a Special Human Anti-Rh Serum, *J. Immunol.* **47**: 46b (Dec.) 1943.

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7. Wiener, A. S.; Sonn, E. B., and Belkin, R. B.: Heredity and Distribution of the Rh Blood Types, *Proc. Soc. Exper. Biol. & Med.* **54**: 238 (Nov.) 1943.

8. Wiener, A. S.; Sonn, E. B., and Belkin, R. B.: Heredity of the Rh Blood Types, *J. Exper. Med.* **79**: 235 (March) 1944.

9. Ferguson, L. C.; Stormont, C., and Irwin, M. R.: On Additional Antigens in the Erythrocytes of Cattle, *J. Immunol.* **44**: 147 (June) 1942.

10. Wiener, A. S.: Role of the Subtypes of Rh in Hemolytic Transfusion Reactions and in Erythroblastosis, *Am. J. Clin. Path.* **14**: 52 (Jan.) 1944.

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12. Race, R. R.; Taylor, G. R.; Boorman, K. E., and Dodd, B. E.: Recognition of the Rh Genotypes in Man, *Nature (London)* **152**: 563 (Nov. 13) 1943.

13. Race, R. R.; Taylor, G. L.; Carpell, D. F., and McFarlane, M. N.: Recognition of a Further Common Rh Genotype in Man, *Nature (London)* **153**: 52 (Jan. 8) 1944.

Current Comment

SAFETY IN PRESCRIBING BY UNITS

Deaths have followed too frequently the erroneous use of potent therapeutic agents. On numerous occasions THE JOURNAL has reported and issued warnings about drugs improperly used or misleadingly labeled and packaged. Preparations intended for use by mouth can be expected to elicit unwanted reactions when injected. Other preparations available in two or more concentrations are likely to yield trouble unless due care is exercised when they are ordered, dispensed and applied. One cause of many accidents is the common practice of prescribing containers instead of units. Thus, the intern and nurse are instructed to give "one ampul" instead of a prescribed number of grams or milligrams expressed in percentage if the drug is in solution. N. N. R. accepted brands of the local anesthetic procaine hydrochloride, for example, include 0.02, 0.05, 0.07, 0.15 and 0.2 Gm. tablets and ampuls of 1, 2 and 10 per cent solution. One brand of the crystals for spinal anesthesia is available in 50, 100, 120, 150 and 200 mg. sizes. What would come of an order for "one ampul" of procaine hydrochloride? Error is unlikely in interpreting "Ampul Solution Procaine Hydrochloride 2 per cent, 1 cc."; "Ampul Gold Sodium Thiosulfate, 10 mg." and "Solution Epinephrine Hydrochloride 1:1,000, 0.5 cc." The adoption of routine prescribing with proper terminology is strongly urged if accidents following mistakes in use of drugs are to be minimized.

CANCER REPORTING IN NEW YORK STATE

Morton L. Levin,¹ assistant director of cancer control, New York State Department of Health, presents cancer statistics for the state of New York and a discussion of the usefulness and workability of the recently enacted cancer reporting law. Cancer reporting in upstate New York began on Jan. 1, 1940, following legislation enacted in accordance with recommendations made by the State Legislative Cancer Survey Commission. These recommendations had previously received the endorsement of the Medical Society of the State of New York. The prevalence of cancer in New York State and its incidence according to site may be surmised from the figures for 1940 to 1942 inclusive. The total number of known persons with cancer alive at some time in 1942 was 35,378, giving an annual prevalence rate of 579 cases per hundred thousand of population. This is 3.6 times the mortality rate. These figures, in the author's opinion, are probably too low. More complete reporting would probably show the prevalence to be four or five times as great as mortality. The ratio of living cases to deaths varies according to the site of the cancer. Thus it was found that for each death from skin or lip cancer there are 30 cases,

from breast and uterine cancer 5 cases, from cancer of stomach and intestine fewer than 2 cases, and from lung cancer 1 case. The value of these figures is that they indicate that the types of cancer which will be encountered most frequently in any program directed toward cases among the living will be in the following order: cancer of the skin, the breast, the uterus, the stomach and the intestine. Among men the five most frequent sites, in order of prevalence, are the skin, the prostate, the stomach, the lip and the lower intestinal tract; among women the breast, the uterus, the skin and the upper and lower intestinal tract are the most frequent sites, in decreasing order. The author feels that the law is workable when the medical profession is properly approached. If one is to judge the completeness of cancer reporting by the percentage of deaths that have been reported previously as cases, then the New York State reporting law is apparently workable and practical. The completeness of cancer reporting in New York State compares favorably with that of other reportable diseases. Cancer reporting, according to the author, has proved useful in providing material for epidemiologic investigation and for evaluation of progress in cancer control, in public education, in professional education, in aiding the follow-up of cancer patients and in the administration of public health nursing service to cancer patients.

MUNICIPAL MEDICAL PLANS IN ONTARIO

The legislative assembly of the province of Ontario, Canada, has adopted a measure "to enable municipalities to establish health services." This law permits any municipality either alone or on the basis of an agreement with one or more municipalities to provide for plans of municipal health services. Such plans must be submitted to a referendum before introduction and will be subject to a referendum for its abolition in the future. The plan provides for poll taxes on all residents, for payroll and for special general taxation in support of such plans. The administration is to be by means of "a board known as the Ontario Municipal Health Services Board, which shall be a body corporate and shall consist of not less than seven and not more than ten members who shall be appointed by the Lieutenant Governor in Council and shall hold office during pleasure." This board shall have the power to "enter into an agreement with any person or with any medical, hospital or other association, corporate or otherwise, for the provision of municipal health services for any municipality which has entered into an agreement with the board." The municipality is to have the power to require any employer to enforce payroll deductions for any amounts payable for the making of such a plan. The law provides for the exemption of any persons "who contribute to a plan for a provision of medical service and health service" and also for the exemption for the members of any religious denominations who may be exempted by regulations from the act.

1. Levin, Morton L.: Cancer Reporting in New York State, New York State J. Med. 44: 880 (April 15) 1944.

MEDICINE AND THE WAR

ARMY

YELLOW FEVER IMMUNIZATION

In view of recent agreements reached by the War Department with the foreign governments concerned, military and civilian personnel subject to field service with the Army, and others authorized to travel to or through endemic yellow fever areas by army transport or airplane, will be vaccinated against yellow fever within four years and not less than ten days prior to entry into an endemic yellow fever area. This policy applies to all persons 10 years of age and older. In order to meet the requirements of the foreign governments concerned, children under 10 years of age who travel by army transport or airplane must have been vaccinated within two years. For the purpose of meeting quarantine requirements of all foreign countries, the Surgeon General now redefines the endemic yellow fever areas as follows: 1. In the Eastern Hemisphere, that portion of Africa lying between latitude 18 south and the northern borders of French West Africa, French Equatorial Africa and the Anglo-Egyptian Sudan, including the islands immediately adjacent thereto. 2. In the Western Hemisphere, the mainland of South America lying between latitudes 13 north and 30 south, including the islands immediately adjacent, and Panama, including the Canal Zone. However, transit through the Panama Canal with brief sojourns within the terminal port cities or army posts within the Canal Zone will not be considered as travel through an endemic area.

CORRESPONDENCE AND INQUIRIES RELATING TO MEDICAL MATTERS

The War Department issued a memorandum on May 13 stating that all correspondence and inquiries received by the War Department relating to medical matters, including among other things the health, physical status and mental condition of all personnel assigned to any branch of the Army and the status and operation of all army medical and related establishments, will be referred to the Surgeon General for the action desired. The Surgeon General will refer such communications as he may consider proper to the commanding generals, Army Air Forces and Army Ground Forces, for direct reply. The commanding generals, Army Air Forces and Army Ground Forces, will furnish a copy of such reply to the Surgeon General. He will check to see that it conforms with policy and if it does not will so inform both the headquarters concerned and the office of the chief of staff.

NINE ARMY NURSES FIRST TO SERVE IN HOSPITALS IN CHINA

Nine officers of the Army Nurse Corps have reached China to become the first Army nurses to be assigned to hospital units in China, according to a recent report by the War Department. The nine women served in hospitals in Assam, India, while their units were being established in China. Heading the group is 1st Lieut. Essie Chevalier, Galveston, Texas. The others are 2d Lieut. Arlie V. Collins, Cedar Grove, Tenn.; 2d Lieut. Jane Easton, Absecon Highland, N. J.; 2d Lieut. Mary Kraus, St. Petersburg, Fla.; 2d Lieut. Lillian G. Kelly, Baltimore; 2d Lieut. La Retta Matthews, Lakeland, Fla.; 2d Lieut. Ellen M. Riordan, Brockton, Mass.; 2d Lieut. Edith G. Rawe, New Martinsville, W. Va., and 2d Lieut. Carolyn L. Taylor, Elizabethton, Tenn.

FIELD EQUIPMENT EXHIBIT

The Army Medical School at Carlisle Barracks, Pennsylvania, dedicated and opened for inspection a field equipment exhibit, May 17, which had been created and built up by the Medical Department Equipment Laboratory. Major Gen. George F. Lull, deputy surgeon general and former director of the department of Military Sanitation at Carlisle Barracks, was principal speaker at the dedication.

AVIATION MEDICAL EXAMINERS

Graduation exercises were held on May 17 for aviation medical examiners following the course on aviation medicine. Brig. Gen. Eugen G. Reinartz, U. S. Army, is commandant of the school. The list of students graduating follows:

ALABAMA

John K. Eppes, Captain, Eufaula.
John A. Martin, Captain, Montgomery.
Daniel R. Ramey Jr., Major, Akron.

ARIZONA

Robert E. Haslings, Major, Tucson.

ARKANSAS

Albert G. McGill Jr., 1st Lieut., Little Rock.
Art B. Martin, 1st Lieut., Fort Smith.
Charles W. Rasco Jr., Captain, De Witt.
Clyde D. Rodgers, Major, Little Rock.
Asa C. Watson Jr., 1st Lieut., Little Rock.

CALIFORNIA

L. Grant Baldwin, Major, Pasadena.
Rene Cailliet, 1st Lieut., Los Angeles.
Clarence E. Dixon, Captain, Los Angeles.
Daniel W. Donahue, 1st Lieut., Los Angeles.
Olley D. Ellefson, Captain, Sanger.
Otto F. Kraushaar, 1st Lieut., Pasadena.
Jack B. Lomas, Captain, Los Angeles.
Norman Nixon, Major, Beverly Hills.
Millard P. Olney, Captain, Los Angeles.
Charles B. Paisley, 1st Lieut., Inglewood.
Robert A. Vaughan, 1st Lieut., Los Angeles.
Ralph W. Wright, Major, Atherton.

COLORADO

Terry J. Gromer, Captain, Denver.
Walter L. Wright, 1st Lieut., Montevista.

CONNECTICUT

Jack J. Albom, Major, New Haven.
David F. Conway Jr., Major, New Haven.
John P. Merrill, 1st Lieut., Hartford.
Maxwell Pasternak, 1st Lieut., New Haven.

DISTRICT OF COLUMBIA

Richard H. Spire, 1st Lieut., Washington.

FLORIDA

Frank J. Fischer, Captain, Fort Lauderdale.

GEORGIA

Oliver F. Bush, 1st Lieut., Columbus.
Donald R. McRae Jr., Captain, Augusta.
Richard L. Seibley Jr., Captain, Savannah.

IDAHO

Brainard E. Hines, Major, Pocatello.

ILLINOIS

Robert B. Brugman, 1st Lieut., Oak Park.
Marvin G. Flannery, Lieut. Col., Evanston.
Clifford C. Grulee Jr., Captain, Evanston.
Ferris D. Highsmith, 1st Lieut., West Union.

Edward L. Jansen, Captain, Chicago.
Donald J. Keating, Captain, Moline.
Vincent J. Kelly, Captain, Kankakee.
Alvin R. Larson, 1st Lieut., Evanston.
Victor M. Towle, Captain, Chicago Heights.
John A. Weidemann, 1st Lieut., Oak Park.
Jack Williams, 1st Lieut., Casey.
William S. Wolf, Major, Chicago.

INDIANA

Mount E. Frantz, Captain, Danville.
Kenneth L. Shaffer, Captain, Vincennes.

IOWA

Wayne K. Cooper, Major, Fort Dodge.
James B. Lawson, 1st Lieut., Des Moines.
Robert V. Thomson, 1st Lieut., Sioux City.

KANSAS

Daniel L. Tappan, 1st Lieut., Salina.

LOUISIANA

Donald J. Baranco, 1st Lieut., Lafayette.
Victor A. Hinterlang, 1st Lieut., New Orleans.

MARYLAND

Harry M. Beek, Captain, Baltimore.
Louis C. Gareis, 1st Lieut., Baltimore.
Robert A. Kiefer, 1st Lieut., Calonsville.
Halley B. Taylor Jr., 1st Lieut., Baltimore.

MASSACHUSETTS

Harold Karlin, Captain, Boston.
Harry N. Memery, Captain, Longmeadow.

MICHIGAN

George S. Barnes, 1st Lieut., Belzoni.
Ralph E. Dawson Jr., 1st Lieut., Blanchard.
Arthur L. McGilvra, 1st Lieut., Saginaw.

MINNESOTA

David P. Anderson Jr., Major, Austin.
John E. Eckdale, Captain, Lyle.
Norman G. Hedemark, Major, St. Paul.

James G. Myhre, 1st Lieut., Stephen.
Robert A. Schneider, 1st Lieut., Minneapolis.
Abolt Skinner, 1st Lieut., St. Paul.
Earl V. Wetzel Jr., Major, Little Falls.

MISSISSIPPI

Joseph T. Ainsworth, 1st Lieut., Raymond.

MISSOURI

Fred C. Buffington, Captain, St. Louis.
Justin J. Cordonnier, Lieut. Col., University City.
Roy A. Highsmith, 1st Lieut., St. Louis.
Ralph J. McQuiston, Lieut. Col., Kirkwood.

Edward P. Reh, Captain, St. Louis.
John R. Showalter Jr., 1st Lieut.,
Glendale.

NEBRASKA

James Richard Paul, 1st Lieut.,
Lincoln.
Jonas A. Proffitt, 1st Lieut., Hast-
ings.
Maurice Tatelman, 1st Lieut.,
Omaha.

NEVADA

Frederic J. Foster, Major, Ruth.

NEW HAMPSHIRE

Frank L. Fletcher, Lieut. Col., Mil-
ford.

NEW JERSEY

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mit.
Bertram M. Bernstein, 1st Lieut.,
Trenton.
George F. Greiner, Captain, Union
City.
Paul B. Patton, Captain, Blairstown.
John P. Riordan, 1st Lieut., South
Orange.
James E. Zullo, 1st Lieut., Jersey
City.

NEW MEXICO

Robert N. Caylor, Captain, Las
Cruces.
Allen C. Gwinu, Major, Carlsbad.
William D. Radcliffe Jr., Major,
Belen.

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Hills.
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York.
Reynold E. Burch, 1st Lieut., New
York.
Emanuel Dejnozka Jr., 1st Lieut.,
Rock City Falls.
John P. Hylant, Captain, Buffalo.
Thomas R. Noonan, Major, Buffalo.
Franklin Robinson, 1st Lieut., New
York.
Edward G. Skerritt, 1st Lieut.,
Brooklyn.
Ralph F. Spencer, Captain, Hudson.
John E. Sullivan Jr., Captain.
Ralph P. Townsend, 1st Lieut.,
Hartsdale.
Robert L. Zimmerman, 1st Lieut.,
New York.

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ville.
Charles L. Newland, Major, Bre-
vard.
Richard O. Rex, Major, Wilkes-
boro.
Henry L. Valk, 1st Lieut., Winston-
Salem.

OHIO

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cothe.
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Robert B. Burrell, 1st Lieut.,
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field.
Norbert S. Greenc, Major, Cleve-
land.
Herman H. Ipp, Major, Youngs-
town.
Francis W. McCoy, 1st Lieut.,
Columbus.
Lawrence B. Mehl, Captain, Cuya-
hoga Falls.
Robert E. Merrill, Captain, Delia.
John Noll Jr., Lieut. Col., Youngs-
town.
Karl F. Ritter, Captain, Lima.
David J. Roberts, Captain, Akron.
Harold D. Waltz, Major, Sandusky.

PENNSYLVANIA

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Bellevue.
George M. Austin Jr., 1st Lieut.,
Philadelphia.

Joseph Beinstein, Captain, Wilkes-
Barre.

William C. Browne, Captain, Cory-
don.

Jay H. Daniels, Captain, Connells-
ville.

Thomas E. Davies, 1st Lieut., Bloss-
burg.

Robert J. Dickinson, Captain, Ridg-
way.

Francis C. Dohan, Captain, Bala-
Cynwyd.

Russell P. Green, Captain, Phila-
delphia.

Alonzo W. Hart, Captain, Phila-
delphia.

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Harrisburg.

John E. Keller, Captain, Reading.

William B. Kieseewetter, Captain,
Chalfont.

Cedric S. King, 1st Lieut., Bryn
Athy.

Emil C. Krug III, 1st Lieut., Wil-
kinsburg.

David M. Melenson, Captain, Phila-
delphia.

Richard C. Murray, 1st Lieut.,
Philadelphia.

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ington.

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Cyril C. Stapinski, 1st Lieut., Glen-
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Erie.

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nooga.

Roy M. Neudecker, Captain, Mem-
phis.

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Jackson.

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James C. George II, 1st Lieut.,
Brownsville.

Carl B. Goolsby, 1st Lieut., Crockett.

Lec R. Rice, Captain, Gainesville.

John V. Sessums, Major, San An-
-gelo.

Fred D. Spencer, 1st Lieut., Brown-
wood.

John M. White Jr., Captain, Port
Arthur.

Franklin W. Yeager, 1st Lieut.,
Corpus Christi.

VIRGINIA

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mond.

John B. Merrick, 1st Lieut., Arling-
ton.

Irwin M. Nuckols, Captain, Mount
Sidney.

WASHINGTON

John R. Corkery, Captain, Spokane.

Philip M. Rogers, Captain, Seattle.

WEST VIRGINIA

Harry F. Coffman II, 1st Lieut.,
Keyser.

Olin M. Goodwin, Captain, Buck-
hannon.

Louis C. Kossuth, Captain, Wheel-
ing.

WISCONSIN

James A. Thompson Jr., 1st Lieut.,
Madison.

WYOMING

Hamilton B. Webb, Captain, Chey-
enne.

RATION KITS FOR USSAF IN EUROPE

A sliding packet of greased cardboard containing 10 hard candies, 10 pastilles, 3 pieces of toffee and 8 pieces of chewing gum was recently designed by Col. Dallas L. Knoll, air service command quartermaster, to be carried by combat crewmen flying long journeys into Europe at high altitudes, who were found suffering from excessive fatigue and hunger. Since the protective clothing worn by these men to keep out cold was too bulky to permit them to carry sandwiches and chocolate bars this packet has proved satisfactory. It contains over 600 calories and weighs only 5¾ ounces. The carton is designed so that it can be easily opened, and the sweets are unwrapped so that they can be eaten without fumbling with sticky papers. The carbohydrate content of the chewing gum and sweets is easily assimilated into the blood stream and results in an increase in blood sugar.

AIR MEDAL AWARDED ARMY NURSES

The first Air Medal ever awarded to a woman in the history of the United States Army was to 2d Lieut. Elsie S. Otto, who served as a nurse for 5 patients who were evacuated from India to Washington, D. C. This medal was received "for meritorious achievement for participating in an aerial flight."

The second Air Medal went to 2d Lieut. Dorothy T. Shikoski, who showed heroism above the call of duty during a crash landing of a plane at sea during a severe storm. Lieutenant Shikoski endangered her own life in attempting to save that of a corporal in a dangerous spot in the forward part of the plane. Despite being injured herself, she helped load food and medicine into the little rubber boat. The plane sank in six minutes. Since that time Lieutenant Shikoski has been awarded two oak leaf clusters in lieu of additional medals.

CONFERENCE ON MEDICAL PROBLEMS
HELD AT GENERAL HOSPITAL

A conference on medical problems peculiar to the armed forces was recently held at the Newton D. Baker General Hospital, Martinsburg, W. Va. (THE JOURNAL, April 8, p. 1065), which was attended by both military and civilian groups. Dr. James Edgar Paullin, President of the American Medical Association, addressed the conference. Brig. Gen. Hugh J. Morgan and Brig. Gen. C. C. Hillman of the Office of the Surgeon General, Washington, D. C., attended the conference. Other guests included members of the Eastern Panhandle Medical Association of West Virginia and the Washington County, Md., Medical Association. Col. E. L. Cook, commander at the Newton D. Baker General Hospital, announced that the formal dedication of the hospital would take place June 9.

LIEUTENANT COLONEL LITTELL EXECU-
TIVE OFFICER AT VAUGHAN
GENERAL HOSPITAL

Lieut. Col. George S. Littell has been named executive officer of the Vaughan General Hospital, Maywood, Ill., which is nearing completion. Dr. Littell recently returned from nearly two years' service in the Southwest Pacific. He was deputy chief surgeon of the American forces in the Southwest Pacific and was later appointed chief of preventive medicine in the chief surgeon's office. He returned to the United States last November and has been serving at the Surgeon General's Office. Dr. Littell succeeds Col. Stuart G. Smith, who has gone overseas.

ARMY HOSPITALS IN INDIA NOW
AIR CONDITIONED

A number of air conditioning units, built by the York Corporation, have been installed in British military hospitals in India to guard against the dangers of perspiration borne infection in American and British soldiers' open wounds during convalescence in that excessively humid climate. General recovery of convalescents is speeded up also because of the units' capacity to combat atmospheres with a temperature of 110 F. and above the humidity of 80 per cent and more.

In addition there was one member of the Medical Corps of the Chilean Air Force, Lieut. Olimpo U. Molina.

ARMY AWARDS AND COMMENDATIONS

Captain Marco R. Bonsignore

The Silver Star Medal was recently awarded to Capt. Marco R. Bonsignore, formerly of Buffalo, for "gallantry in action near Bompietro, Sicily, July 23, 1943. During a violent engagement with the enemy he proceeded to the aid of an infantry unit which had suffered heavy casualties. Undaunted by enemy artillery and small arms fire, he skillfully treated the wounded and directed their speedy evacuation. His splendid initiative inspired those who witnessed his actions." Dr. Bonsignore graduated from the University of Rome in 1935 and entered the service April 15, 1940.

Colonel Joseph Haas

Col. Joseph Haas, formerly of New York City and now commanding officer of a United States Army station hospital in England, has recently been commended in a letter from Major Gen. Paul R. Hawley, chief surgeon of the European theater of operations. The letter said in part "I can truthfully say I have no finer hospital in the European theater of operations."

I am particularly pleased that an old friend and loyal subordinate of twenty-five years ago is again supporting me so well." Dr. Haas served under General Hawley's command in the first world war. He volunteered for service in the first world war and was commissioned a first lieutenant in the Medical Corps in June 1917. He became regimental surgeon of the 334th Infantry. When the war ended he was commanding a field hospital in occupied Germany. Now he is commanding a station hospital in England which is serving Allied troops massed for invasion.

Captain David N. Kerr

The War Department recently announced the award of the Silver Star to Capt. David N. Kerr, formerly of St. Louis, for "gallantry in action near El Guettar, Tunisia, March 28, 1943. During two successive enemy counterattacks, under intense enemy machine gun and artillery fire, he successfully treated and evacuated a number of wounded men. His courageous and unselfish actions undoubtedly saved many lives." Dr. Kerr graduated from Washington University School of Medicine, St. Louis, in 1941 and entered the service Jan. 10, 1942.

MISCELLANEOUS

URGENT NEED FOR NURSES

Dr. Frank H. Lahey, chairman of the Directing Board of the War Manpower Commission's Procurement and Assignment Service, which is responsible for the equitable allocation of nurses between the armed forces and the civilian population, stated that 10,000 graduate nurses have been requested by the Army between now and July 1, 1945 and that the Army would like at least 5,000 of them by Dec. 31, 1944. The Navy also has a continued urgent need for at least 500 nurses a month until its full strength is achieved. In addition, both services will always require some replacements.

Although all active graduate nurses in the United States have not yet been classified by the Procurement and Assignment Service as to whether they are available for military service or essential to civilian care, reports from thirty-two states show that the nursing profession can still spare nurses for active duty with the Army or Navy. Sixty thousand nurses have been classified in those states, and those who have been declared available are expected to apply for a commission in the Army or Navy Nurse Corps. Reports from the remaining states where classifications have not been completed are expected soon.

The Procurement and Assignment Service, which was established in 1941 to allocate physicians, dentists, veterinarians and sanitary engineers, was not given the responsibility for nurses until July 1943. A classification system for nurses, comparable to that established for physicians, was therefore established recently to anticipate military needs before they become acute.

PROCESSING OF PHYSICIANS

Both the Army and the Navy have authorized the appointment of civilian physicians and dentists to commissioned grade for assignment to duty with the Veterans Administration, provided they are unacceptable to the Army or the Navy because of physical disqualification or age and the War Manpower Commission has declared them, in each case, available. The Army will appoint for this duty civilian doctors and dentists up to the age of 63 years; the maximum age for Navy appointment is 60 years. Applications of physicians and dentists declared available to the Army will be handled as follows: (a) Those physically disqualified for duty with an army installation or unit but physically qualified for duty with the Veterans Administration will be considered for appointment in the Army of the United States and assignment to a Veterans Administration installation. (b) Those physically qualified for general or limited military service with an army installation or unit will be considered as follows: (1) Those under the age of 45 years may be commissioned in the Army of the United States for duty with an army installation; (2) those between 45 and 55 years of age who are physically qualified for general military service

only will be referred by the Officer Procurement Service to the Navy for consideration for appointment by the Navy for duty with a navy installation; (3) those between the ages of 55 years and 63 years will be considered for appointment in the Army of the United States for duty with the Veterans Administration only.

On contacting a physician made available to the Army, he should be informed that if physically disqualified for duty with an army or navy installation, or over age for either service, he may be qualified for duty with a Veterans Administration facility. If commissioned in the Army and placed on duty with the Veterans Administration he has all the rights, privileges and obligations of any other army officer. Veterans Administration's professional standards are identical with those of the Army.

For the present the Veterans Administration does not require the services of dentists under this program.

Previous instructions on the processing of physicians, interns and residents have been canceled.

OREGON STATE MEDICAL SOCIETY
PUBLISHES SERVICE BULLETIN

With its July issue the Oregon State Medical Society's *Service Bulletin*, an experiment in human relations, ends its first year of publication and pauses to count its blessings, which it finds are numerous.

A year ago the society became aware of the fact that the abrupt and complete jerking away of a physician into service from his normal professional life and contacts was no less a devastating experience than the disruption of his family and social life. In a way it was worse, for correspondence with relatives and friends kept him in touch with his personal life but, although medical journals kept him informed as to developments in medical science, nothing existed to keep him familiar with his confrères or with changing conditions of practice at home that might affect his future.

In no time at all he felt himself pocketed, isolated professionally, uncertain as to his future. It was in an effort to bridge this gap that the *Service Bulletin* was started. It is sent without charge to all reputable physicians of the state, in service or not, members of the society or not. It is strictly a news organ, scrupulously edited and wholly free of propaganda. It carries a complete roster of physicians in the armed forces from the state, with their addresses as far as consorship permits. It has a department of personal letters and news, and it summarizes medical activities in the state. When the confusion in Congress over absentee voting became obvious, the *Bulletin* checked its roster against county lists, sent out registration blanks by air mail and saw to it that every Oregon physician

within reach of air mail was given an opportunity to vote in the primaries. Its whole aim has been to keep men in service so closely in touch with one another and with those at home that they will return to their state as familiar friends, not as strangers, with their participation in civil and professional life uninterrupted.

The response has been startling. Direct response (letters or cards) came from 83 per cent of all physicians in service from the state—from 88 per cent of those overseas. Publishable news letters were sent in by 55 per cent of those overseas and 31 per cent of those still in the United States, and, most satisfying of all, 38 per cent of all in service have taken the time and trouble to write in commendatory and appreciative letters. The response from the civilian physicians has been scarcely less impressive. All in all, the *Service Bulletin* celebrates its first birthday in a comfortable glow of having done a job that people really wanted done.

ESTABLISH JOINT TREATMENT CENTERS

Joint treatment centers in the special fields of plastic surgery, neurosurgery and orthopedic surgery will be established in Montreal, Toronto, Winnipeg and Vancouver by the Army, Navy and Air Force and the Department of Pensions and National Health. It is expected that similar joint centers may be opened in other cities and that the pooling of service specialists may spread to other branches of surgery. An advisory committee of surgical consultants from the three services and the Pensions Department has been formed to make recommendations for staffing the units and for common policy. Included on this committee are Col. R. I. Harris, chairman; Capt. Donald Webster, Wing Comdr. A. W. Farmer and Dr. E. B. Convery of Ottawa. The centers will be established as follows:

Neurosurgery: Montreal, at Ste. Anne Hospital and Montreal Neurological Institute to serve eastern Canada; Toronto, at Christie Street Hospital to serve Ontario except the northwestern portion; Winnipeg, at Deer Lodge Hospital to serve the eastern part of the prairie provinces and northwestern Ontario; Vancouver, at Shaughnessy Hospital to serve the Pacific Coast.

Plastic Surgery: Toronto, at Christie Street Hospital, Hamilton at R. C. A. C. Convalescent Hospital.

Orthopedic Surgery: Toronto, at Christie Street Hospital to serve Ontario except the northwestern portion; Winnipeg, at Deer Lodge Hospital to serve the eastern part of the prairie provinces and northwestern Ontario; Vancouver, at Shaughnessy Hospital to serve the Pacific Coast; Montreal, at Ste. Anne's Hospital to serve eastern Canada pending the establishment of such a center in the Maritime Province.

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

(Continuation of list in THE JOURNAL June 10, page 436)

INDIANA

Epworth Hospital, South Bend. Capacity, 270; admissions, 9,065. Mr. Vernon T. Root, Administrator (intern).

MICHIGAN

St. Lawrence Hospital, Lansing. Capacity, 230; admissions, 6,897. Sister Mary Assisium, Superintendent (interns).

MINNESOTA

Bethesda Hospital, St. Paul. Capacity, 180; admissions, 6,083. Rev. L. B. Benson, Superintendent (interns).

NEW YORK

Kingston Hospital, Kingston. Capacity, 133; admissions, 2,484. Miss Jessie P. Allan, Superintendent (mixed resident).

TEXAS

Nix Hospital, San Antonio. Capacity, 181; admissions, 5,150. Miss Ellen L. Brient, R.N., Superintendent (intern).

SUPPLEMENT TO BIBLIOGRAPHY OF AVIATION MEDICINE

Lieut. Comdr. E. C. Hoff recently visited the Yale Acromedical Laboratory, Yale School of Medicine, New Haven, Conn., to discuss the final preparation for the forthcoming supplement to the Bibliography of Aviation Medicine. Volume one of this work was published under the auspices of the National Research Council and brings together in a detailed classification all problems in aviation up to June 1942. This literature includes not only work bearing directly on the medical aspects of flying personnel but a large amount of investigative work that has been carried out at high mountain altitudes, in decompression chambers and in experimental laboratories where low oxygen mixtures have been administered. With the tremendous expansion of military aviation there has appeared a large amount of additional literature since the first volume of the Bibliography of Aviation Medicine was published. Furthermore, a number of special problems within the field of aviation medicine have had a particularly rapid growth and have come into special prominence. It is hoped that this supplement, which will also be published under the auspices of the National Research Council, will be available for distribution within a short time to flight surgeons and research workers in aviation medicine.

COMMUNITIES IN NEED OF PHYSICIANS

The following communities have applied to the U. S. Public Health Service for federal assistance in obtaining the services of physicians under the recently enacted law authorizing an appropriation of \$200,000 for the relocation of physicians:

Pineville (Mecklenburg County), North Carolina
Waxhaw (Union County), North Carolina
Glenrock (Converse County), Wyoming
Leola (McPherson County), South Dakota
Faith (Meade County), South Dakota
Vale (Malheur County), Oregon
McEwen (Humphreys County), Tennessee
Tribune (Greeley County), Kansas
Colome (Tripp County), South Dakota

Physicians interested in locating in these communities should communicate with the Surgeon General, United States Public Health Service, Washington (Bethesda Station), D. C.

PRESCRIPTION OF CREAM FOR THE SICK

On June 2 the War Food Administration issued War Food Order 13, Amendment 2, concerning the use of heavy cream in the treatment of the sick, which was discussed in an editorial in THE JOURNAL, Feb. 19, 1944, page 511. The amendment requires that prescriptions for heavy cream be approved "by the public health officer, or the secretary of the county medical society, of the municipality or county" wherein the patient obtaining the prescription resides or the hospital desiring heavy cream is located, and is effective as of June 7.

WARTIME GRADUATE MEDICAL MEETINGS

Additional subjects and speakers for Wartime Graduate Medical Meetings have just been announced:

At the Rhoads General Hospital, Utica, N. Y.: Malaria, Dr. Bertram Levinson, June 20; Blood and Blood Substitutes: Their Indications and Uses, Dr. Frederick Marty, July 20; Wounds of the Extremities and Their Management, Dr. Roscoe Severance, August 17.

CUTTER LABORATORIES AWARDED ARMY-NAVY E PENNANT

Cutter Laboratories, Berkeley, Calif., were recently presented with the Army-Navy E pennant for outstanding achievement in war production. Dr. Benjamin W. Black, chairman at the presentation, stated that Cutter Laboratories' "production of blood plasma, vaccines and penicillin is unequalled in the world."

ORGANIZATION SECTION

OFFICIAL NOTES

COUNCIL ON MEDICAL SERVICE

The Council on Medical Service of the American Medical Association held a conference on the provision of medical care for the American people at the Mayflower Hotel in Washington, May 22. Those present at the conference included the officers of the American Medical Association members of the Council and representatives of governmental agencies interested in health, Congressman A. L. Miller of Nebraska and Congressman F. C. Smith of Ohio, and representatives of the American Dental Association, Congress of Industrial Organization and the American Federation of Labor. In opening the conference Dr. Louis H. Bauer of Hempstead, N. Y., chairman of the Council, said:

"The American Medical Association a year ago established this Council on Medical Service and Public Relations to make, among other things, a survey of the medical care situation and to develop a distribution of medical care that would reach every man, woman and child in the United States. The council has studied compulsory sickness insurance in general and the Wagner-Murray-Dingell bill in particular. It has studied surveys of public opinion, it has investigated voluntary medical expense insurance, group hospital insurance and the various industrial health plans. It has considered the establishment of diagnostic centers and, in fact, it has discussed nearly all phases of medical care and the means suggested to improve the distribution of good medical care.

"This conference has been called to make certain that all the ideas of every one interested in medical care would be available for our consideration. It goes without saying that we are all interested in one goal—namely, the distribution of a high type of medical care to 100 per cent of the population. We feel that if we all understand and listen to every one's point of view we should be able to effect agreements, provided we adhere to that main goal of reaching everyone within his means to pay. There is one point on which no compromise is possible, and that is that a high quality of medical care must be given to all.

"Our problem involves preventive medicine, curative medicine, public health medicine, laboratory medicine, medical education and medical research.

"We believe that the answer to the problem is not a single answer but a multiple answer. What will be satisfactory for a large industrial group will not necessarily be satisfactory or practicable for a scattered agricultural population.

"However, if we all are willing to pull in the same boat we should be able to solve the complex problem with reasonable satisfaction to all.

"We appreciate your giving your time to come here today and we shall appreciate hearing your thoughts. I can assure you that every member of this council is earnestly impressed with the importance of the problem and will do his level best to help solve it.

"We have asked each of you to present his ideas briefly and, after all have had an opportunity to be heard, we hope there will be time for some friendly discussion. If you have not already done so, will you please give the secretary a copy of your remarks so that they will be available for detailed study by the council. If this conference proves worth while, and we are sure it will, we hope that other conferences may be held from time to time in the future. In the meantime, if at any time any of you have problems which affect your particular group which you feel the council could aid you in solving, I hope you will feel free to call on us and I can assure you of our hearty cooperation."

Dr. Thomas Parran, Surgeon General of the United States Public Health Service, emphasized the importance of preventive

medicine, continuing research and the extension of facilities such as hospitals and health centers.

Congressman Smith opposed regimentation of medicine, pointing out that such regimentation would lead eventually to regimentation of finance and of labor.

Dr. Wilburt Davison of Duke University School of Medicine pointed to the importance of maintaining medical service and a supply of physicians for rural areas.

Mr. George F. Addis of the C. I. O. stated, as the policy of that organization, support of a federal system of security against sickness, including hospitalization and medical care. He did not believe this could be accomplished by the plans of medical societies or by private insurance companies.

Congressman Miller urged particularly unification of health agencies of the government in a single agency, and especially transfer of the health functions of the Children's Bureau to the United States Public Health Service.

Mr. Watson Miller of the Federal Security Agency said that the administration has no fixed formula but will do everything possible to develop further channels for extending health and medical service to more and more people.

Statements were made also by Dr. Martha Eliot of the Children's Bureau; Dr. F. F. Borzell of Philadelphia, chairman of the Council on Medical Service of the Pennsylvania State Medical Society; Capt. E. F. Wells, U.S.N.R., president of the American Dental Association; Dr. F. R. Sanderson, president of the Medical Society of the District of Columbia; Dr. E. H. Cary of Dallas, Texas, chairman of the board of the National Physician's Committee; Senior Surgeon Dean A. Clark, U. S. P. H. S., attached to the office of vocational rehabilitation, and Dr. Paul C. Barton of the War Manpower Commission's Procurement and Assignment Service for Physicians, Dentists and Veterinarians. Dr. Barton pointed out the necessity for maintaining a continuing supply of physicians to provide medical service regardless of various plans for extending medical service. A sufficient number of medical students of high quality is basic to the development of complete and competent medical care, he said.

DOCTORS AT WAR

Radio broadcasts of Doctors at War by the American Medical Association in cooperation with the National Broadcasting Company and the Medical Departments of the United States Army and the United States Navy are on the air each Saturday (3:30 Central war time, 2:30 Mountain war time and 1:30 Pacific war time).

The titles and guest speakers for the next two programs are as follows:

June 17. "Mechanized Dandruff."

Speaker, Brig. Gen. James S. Simmons, Chief, Preventive Medicine Service, War Department, Washington, D. C.

June 24. "Serving all Services."

Honor Citations and Service Melodies.

Owing to the uncertain state of communications consequent on fast shifting military fronts, it has been impossible to arrange the Doctors at War broadcast scheduled for July 1, on which it was planned to present Army and Navy medical officers by short wave from actual war theaters. Doctors at War, therefore, will close with the broadcast of June 24. This will be a special broadcast emphasizing the services of doctors to all branches of the armed forces. It will be a special broadcast of military music by the N. B. C. orchestra, a male chorus and a contralto soloist. The program and the series will close with a radio "taps" ceremony honoring physicians who have given their lives in the service of the men and women of our armed forces.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—S. 1808 has passed the Senate and House, a bill to authorize temporary appointments as officers in the Army of the United States of members of the Army Nurse Corps, female persons having the necessary qualifications for appointment in that corps, female dietetic and physical therapy personnel of the Medical Department of the Army, exclusive of students and apprentices, and female persons having the necessary qualifications for appointment in such department as female dietetic or physical therapy personnel. H. J. Res. 241 has passed the House, requesting the President to approach the governments of all opium producing countries throughout the world urging them to take immediate steps to limit and control the growth of the opium poppy and the production of opium and its derivatives to the amount actually required for strictly medicinal and scientific purposes. H. R. 735 has passed the House, a bill

providing that all persons who served in a civilian capacity under the jurisdiction of the Quartermaster General during the war with Spain, the Philippine Insurrection or the China Relief Expedition on vessels owned by the United States and engaged in the transportation of troops, supplies, ammunition or materials of war who were discharged for disability incurred in such governmental service in line of duty shall be entitled to medical and hospital treatment and domiciliary care in Veterans' Administration facilities in the same manner and to the same extent as now or hereafter provided for veterans of any war. H. R. 4729 has passed the House, authorizing an appropriation of \$500,000 to provide books published either in raised characters, or sound reproduction records, or in any other form, for the use of the adult blind residents of the United States. H. R. 4881 has passed the House, a bill to bring Isonipicaine within the coverage of federal narcotic laws.

WOMAN'S AUXILIARY

Mississippi

Open house in observance of Doctor's Day was held recently when members of the auxiliary to the South Mississippi Medical Society entertained at the home of Dr. and Mrs. J. P. Culpepper Jr.

Missouri

The convention of the Missouri auxiliary was held in Kansas City April 24. A board meeting and a buffet supper preceded the meeting at the home of Mrs. Earl Padgett, president of the Jackson County auxiliary. Dr. W. W. Bauer gave an address on "Courage Is Not Rationed." This year Missouri added three new auxiliaries and shows a gain in membership. Mrs. L. B. McCubbin of Fulton is the new president and Mrs. Harry Gilkey of Kansas City was chosen president-elect.

The twentieth annual meeting of the Woman's Auxiliary to the Missouri State Medical Association was held recently in Kansas City at the Hotel President. Mrs. R. C. Haynes of Marshall presided. Dr. W. W. Bauer, director of the Bureau of Health Education of the American Medical Association, spoke on "Courage Is Not Rationed."

Mr. Thomas W. Parry, public relations consultant, addressed the members of the convention on "The Doctor's Wife in a Public Relations Program." Dr. A. W. McAbster paid tribute to his father, Dr. A. W. McAbster, who had given so generously to the cause and success of his noble and beloved profession. A portrait of Dr. McAbster was unveiled at this time.

Rev. Father Schwitalla, S.J., dean of St. Louis University School of Medicine, gave an address on the details of the position of medical education in federalized medicine.

Mr. John M. Pratt, administrator of the National Physicians Committee, spoke on "What the American People Think About Doctor's Medical Care and the Prepayment Plan."

Mrs. J. B. McCubbin of Fulton and Mrs. Harry M. Gilkey of Kansas City were installed as president and president-elect, respectively.

New Jersey

The Woman's Auxiliary to the New Jersey Medical Society held its seventeenth annual meeting April 25-26 in Atlantic City.

New York

The annual convention of the New York auxiliary was held May 8-11 at the Hotel Pennsylvania, New York City.

The Herkimer County auxiliary celebrated its fourth anniversary recently at the Mohawk Valley Country Club. This auxiliary has been donating books and magazines to the Herkimer Memorial Hospital.

North Carolina

A new auxiliary was recently organized in Wilson County with Mrs. Eric Bell as president.

The Greenville German Club donated \$25 to the North Carolina auxiliary to help buy an emergency medical field set for the destroyer *Fremont*.

Ohio

The fourth annual meeting of the Ohio auxiliary was held recently in Columbus concurrently with the ninety-eighth annual meeting of the Ohio State Medical Association.

Members of the Woman's Auxiliary to the Cincinnati Academy of Medicine have been commended by the city board of health for their assistance in the physical examination of high school students and at the Max Stern Heart Station.

Twenty-nine members of the Franklin County auxiliary have enrolled in a course of current community and city health problems being conducted by Mrs. Ralph Hoffman, chairman of education.

Pennsylvania

The Woman's Auxiliary to the Beaver County Medical Society recently met at the Penn-Beaver Hotel, Rochester, Pa., for a luncheon, with twenty-three members in attendance; Mrs. A. W. Cully, president, conducted a short business meeting. Mrs. H. M. Fleming, *Hygeia* chairman, reported the sale of fifty *Hygeia* subscriptions. Mrs. H. B. Jones reported on the War Participation Committee. Letters were written to each doctor from the county now in service. Mrs. R. A. Marquis reported good progress in the collection of old instruments.

South Carolina

The Pickens County auxiliary donated \$10 to buy cod liver oil for indigent children and tuberculosis patients.

West Virginia

Doctor's Day was observed by the Kanawha County Auxiliary recently with a luncheon at the Charleston Woman's Club. A paper was read on "Doctors in the War," after which the local doctors in service were named, and their rank, branch of service and location were given. A large map of the world was used and flags attached to show where the doctors were serving. Twenty dollars was given to the Red Cross War Fund.

Wisconsin

The midyear meeting of the board of directors of the Woman's Auxiliary to the State Medical Society of Wisconsin was held recently in Milwaukee. Mrs. Eben J. Carey, national president, spoke briefly of the program of the Woman's Auxiliary.

The Brown-Kewaunee-Door County Medical Auxiliary met recently at Green Bay. Mrs. P. R. Monohan was elected president.

Six students of Central High School, Sheboygan, presented a round table discussion of the Wagner-Murray-Dingell bill before the Sheboygan auxiliary at its recent meeting.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Physicians Needed.—The Los Angeles County Civil Service Commission announces positions in the county general hospital and other county institutions. Anesthetists and physicians specializing in tuberculosis are specifically mentioned. The positions, paying \$290 to \$344 a month, are open for permanent appointment to physicians who are not over 55 years of age. Applications for the positions available to physicians must be filed on or before June 24. Applications for the positions available to anesthetists with the degree doctor of medicine must be filed before July 1. Additional information may be obtained from the office of the commission, room 102, Hall of Records, Los Angeles 12.

Labor Approves Preemployment Blood Tests.—The Bay Area Metal Trades Council of the American Federation of Labor unanimously passed a resolution recently approving voluntary preemployment serologic examinations which are conducted by management in cooperation with the health departments. Medical representatives of management will secure the serologic specimens for submission to the laboratory of the San Francisco City and County Department of Public Health. The results will be referred to the division of venereal diseases of the local department of health. All information will be kept confidential. Efforts will be made to inform persons with positive examinations and to have them begin treatment. No threat of discharge or relief of employment will be made. Establishment of the program was made possible with the assistance of the California Social Hygiene Association, the cooperation of union officials and the division of venereal disease of the city and county health department.

CONNECTICUT

Personal.—Dr. Reo J. Marcotte has resigned as assistant director of the New Haven Hospital, New Haven, to become administrator of the House of Mercy Hospital, Pittsfield, Mass.

Clinical Congress.—The twentieth clinical congress of postgraduate medicine of the Connecticut State Medical Society will be held in New Haven, September 28-29, under the chairmanship of Dr. Francis G. Blake, dean of the Yale University School of Medicine.

Institute on Hospital Help.—The first institute on hospital personnel management will be conducted June 26-30 at Yale University, New Haven, under the auspices of the American Hospital Association. Cooperating agencies include the university, the New England Hospital Assembly and the Connecticut Hospital Association. James A. Hamilton, director of the New Haven Hospital, will head the institute. Lectures, seminars and round table and panel discussions will include consideration of such subjects as personnel problems, selection and placement, labor turnover, wages and financial incentives, supervision of employees, morale building, merit rating and promotion, organization of training programs, handling of grievances, collective bargaining and employee health service and related problems. The faculty will be composed of leaders from hospital administrative staffs, university faculties, industry and government.

GEORGIA

Medical School Provides Care for State Prison.—On May 4 the board of regents adopted a resolution authorizing the University of Georgia School of Medicine, Augusta, to cooperate in every possible way in providing medical care for the Georgia State Prison in accordance with a recommendation made by the faculty of the school of medicine. The board also offered the facilities of the University System of Georgia to the authorities of the state prison to help the institution. The action followed a study of the situation at the prison made by a committee from the medical school. The program means that interested graduates of the medical school would be enabled to serve their internship at the prison. Certain specialists of the faculty of medicine will be available for consultation. It is believed that the plan will provide good clinical material for medical school students.

Annual Report of Georgia Warm Springs Foundation.—A total of 541 patients from thirty-seven states received treatment during the fiscal year ended Sept. 30, 1943, according to the annual report of the foundation. The 346 patients who received financial assistance were given 25,038 hospital days care, or 79.16 per cent of the total 31,628 days hospital care given all patients. Of the 541 patients in residence during the year 261, or nearly half, were in the age group of 10 through 19 years. Of the remainder, 155 patients ranged from 20 through 38 years, 106 were under 10 years and 19 were over 39 years of age. Grants received from the National Foundation for Infantile Paralysis included \$225,000 for general purposes for the year beginning Oct. 1, 1943 and \$43,480 for educational purposes for the year beginning July 1, 1943. Revenue from patients and other activities at Warm Springs, plus donations and bequests, totaled \$234,123.36. Excess of expenses over revenue, exclusive of grants, for the year ended Sept. 30, 1943 was \$164,146.

ILLINOIS

Dr. Hullerman Joins Hospital Association.—Dr. Hugo V. Hullerman, chief of the division of maternal and child hygiene, Illinois State Department of Public Health, Springfield, has joined the American Hospital Association as secretary of the council on professional practice, which coordinates matters of a professional nature in hospitals. Hazen Diek, administrator for the Louisville General Hospital and the Waverly Hills Sanatorium, Waverly Hills, both in Kentucky, has been appointed secretary of the council on administrative practice of the American Hospital Association.

Chicago

John Zingrone Dies.—John B. Zingrone, for thirty-five years director of the x-ray department, Mercy Hospital, and associate radiologist at Loyola University School of Medicine, died May 27 at his summer home in St. Joseph, Mich.

Narcotic Violation.—Dr. Ralph W. Kirchner recently pleaded guilty in the U. S. District Court at Chicago to a violation of the federal narcotic laws. According to the federal bureau of narcotics, Dr. Kirchner was sentenced on April 4 for the infraction and placed on probation for a period of five years.

Chinese General Lectures at University.—Lieut. Gen. Robert Kho-sheng Lim lectured at the University of Chicago, May 23. His subject was "Medical Experiences in the China, Burma and India Theater of War." General Lim is chief of the supervisory and planning commission of the Chinese army medical service.

Course in Electrocardiography.—The cardiovascular department of Michael Reese Hospital announces a course in electrocardiography August 21-September 2. Emphasis in the course will be placed on chest leads and on the importance of the electrocardiogram in coronary sclerosis and myocardial infarction. The course is open to beginning and advanced students in electrocardiography. Dr. Louis N. Katz, director of the cardiovascular research, will direct the program. Additional information may be obtained from the cardiovascular department, Michael Reese Hospital, 29th Street and Ellis Avenue, Chicago 16.

MASSACHUSETTS

Changes in State Medical Board.—Dr. Abel W. Atwood, Worcester, was recently elected chairman of the state board of registration in medicine and Dr. Gerardo M. Balboni, Boston, was appointed a member.

Cutter Lecture.—Dr. Anatol A. Smorodintsev, head of the department of virus diseases at the Institute of Experimental Medicine in Leningrad, delivered the Cutter Lecture on preventive medicine at the Harvard Medical School, Boston, May 26, on "New Forms of Encephalitis in the U. S. S. R." Dr. Smorodintsev is in America as a guest of the Rockefeller Institute for Medical Research and this is his first trip to the country. He has received the Stalin Award for Distinguished Service for his work in encephalitis.

Dr. Merritt Resigns at Harvard.—Dr. H. Houston Merritt, associate professor of neurology, Harvard Medical School, and visiting neurologist at Boston City Hospital, has resigned to become chief of the division of neuropsychiatry at Montefiore Hospital for Chronic Diseases, New York, and professor of clinical neurology at Columbia University College of Physicians and Surgeons in charge of the teaching at Montefiore Hospital, effective September 1. Dr. Merritt will succeed Dr.

S. Philip Goodhart, who is retiring. Dr. Merritt, who graduated at Johns Hopkins University School of Medicine, Baltimore, in 1926, has been a member of the staff at Harvard since 1931.

MICHIGAN

Seminar in Speech Rehabilitation.—A graduate seminar in speech rehabilitation for the civilian and war injured will be offered by the department of speech at the University of Michigan Medical School, Ann Arbor, July 3-August 5. An intensive study of speech disorders resulting from war injuries will be a feature of the course.

Changes in Health Officers.—Dr. James P. Sharon, Mount Pleasant, has resigned as director of the Isabella County Health Unit to accept a position with the Mississippi State Board of Health.—Dr. Charles F. Atkinson, health officer of Missaukee, Kalamazoo, Crawford and Roscommon Counties Health Unit, has been placed in charge of the Grand Traverse-Leelanau County unit, succeeding Dr. Buell H. Van Leuven, Sault Sainte Marie.

New Health Center.—The construction of a new \$70,000 health center in Royal Oak is now under way. The Oakland County Health Department, which has maintained a district office in the southern part of the county for sixteen years, will occupy the new unit. The county furnished the land and office equipment, and the Federal Works Agency appropriated \$87,000 to erect and equip the center. The contract was let for \$70,775. Title to the property will be held by the federal government, which in turn leases it to the county for use as a health center.

Pine Crest Sanatorium Taken Over by State.—The state sanatorium commission has taken title to Pine Crest Sanatorium, Oshtemo, following authorization by the legislature. Dr. Anthony D. Calomeni, LaSalle, assistant director of the bureau of tuberculosis control of the Michigan Department of Health, has been appointed medical director of the institution, which will be known as the Pine Crest State Sanatorium. The sanatorium had previously been operated as a private institution under the medical supervision of Dr. Benjamin A. Shepard, Kalamazoo, who recently retired because of ill health.

MISSOURI

New Executive Secretary for State Association.—Mr. Thomas R. O'Brien, formerly manager of the Medical-Dental Service Bureau, Inc., has been appointed executive secretary of the Missouri State Medical Association, effective June 1. Mr. O'Brien has been an insurance broker and assisted with the work of the Group Hospital Service, Inc., St. Louis.

Pioneers of American Medicine.—The Jackson County Medical Society sponsored a meeting on May 24 to display a group of portraits executed by Dean Cornwell depicting "Pioneers of American Medicine." Among the speakers were Miss Ethlyne Jackson, acting director of the William Rockhill Nelson Gallery of Art, on "The Exhibit from the Viewpoint of the Art Critic" and Dr. Logan Clendening, Kansas City, "American Medicine in the Making." Another feature of the meeting was a display of historical objects from the collection of Dr. Clendening.

NEW JERSEY

State Medical Election.—Dr. Samuel Alexander, Park Ridge, was chosen president-elect of the Medical Society of New Jersey at its annual meeting in Atlantic City, April 26. Dr. Joseph F. Londrigan, Hoboken, was installed as president. Dr. Alfred Stahl, Newark, is secretary and Edith L. Madden acting executive officer. The 1945 session will be held in May in Atlantic City.

Industrial Meeting.—The New Jersey Association of Industrial Physicians will meet at the Academy of Medicine of Northern New Jersey, Newark, June 30. Included among the speakers will be:

- Dr. Edgar E. Evans, Penns Grove, Hydrofluoric Acid Burns and Their Treatment.
- Dr. Augustus Gibson, Montclair, Methyl Bromide Burns and Their Treatment.
- Dr. James M. Carlisle, Westfield, Penicillin and Streptothricin in the Treatment of Industrial Injuries.
- Dr. Frederick Parker Willey, Newark, Rehabilitation of Returned Servicemen.

Doctor Donohoe Honored.—The board of directors of the Bayonne Hospital and Dispensary, Bayonne, held a dinner recently in honor of Dr. Lucius F. Donohoe in recognition of his fiftieth anniversary as a member of the staff of the hospital. Dr. Donohoe was elected to the medical staff in 1894,

appointed visiting surgeon in 1896, elected president of the medical staff and a member of the board of directors in 1917, appointed chairman of the building committee in 1926 and elected medical director in 1927. Dr. Donohoe has served as president of the Bayonne and the Hudson County medical society and of the Medical Society of New Jersey.

State Board Endorses Change in Licensure Requirements.—On April 19 the state board of medical examiners approved an amendment to its statutes to provide that, in the board's discretion during the present war and for a period of three months after its cessation, an applicant for license to practice medicine and surgery in the state will be acceptable who has completed not less than nine months' internship in a hospital approved by the board. The state board rules relating to the certification of prospective interns to the approved hospitals situated in New Jersey was also amended, making it no longer mandatory for such interns to make application for a certificate to commence internship.

NEW YORK

Alpha Omega Alpha Lecture.—Dr. Louis S. Goodman, professor of pharmacology and physiology at the University of Vermont College of Medicine, Burlington, delivered the annual Alpha Omega Alpha lecture at the Syracuse University College of Medicine, Syracuse, May 17, on "Some Aspects of Recent Advances in Pharmacology."

Dr. Barrera Named Professor of Neurology and Psychiatry at Albany.—Dr. S. Eugene Barrera, principal research psychiatrist, New York State Psychiatric Institute and Hospital, has been appointed professor of neurology and psychiatry at Albany Medical College and psychiatrist in chief and neurologist at Albany Hospital. He succeeds Dr. D. Ewen Cameron, who went to Montreal to become director of the new Allan Memorial Institute of Psychiatry at McGill University (THE JOURNAL, Nov. 20, 1943, p. 783). Dr. Barrera graduated at Columbia University College of Physicians and Surgeons in 1929.

Pharmacist Sentenced for Sale of Pentobarbital.—Murray. Steir, pharmacist, on May 15 was sentenced to an indeterminate penitentiary term up to three years for selling to a girl agent of the health department sixteen sodium pentobarbital capsules without a physician's prescription. According to the New York Times, presiding Justice Irving Ben Cooper had voted for a less severe sentence, a \$500 fine and a suspended six month workhouse term. He said that he did not consider sodium pentobarbital as dangerous and habit forming as heroin, morphine and other such drugs. But Justice Frederick L. Hackenburg, who imposed the sentence, stated that sodium pentobarbital "today is taking the place of the heroin which was smuggled into this country by the imperial Japanese government." In explaining what, the Times said, was the severest sentence ever imposed for the offense of drug selling, Justice Hackenburg stated that Steir, who had pleaded guilty to a violation of the sanitary code in the sale of the capsules, "was found to have disposed of more than fifty thousand of these capsules in the three years before his arrest last February." A health department inspector had testified that the girl agent had bought sixteen capsules known as "goof pills." It was stated that complaints had been received on Steir's enormous traffic in the "goof pills" from federal and state hospital authorities and the local narcotics bureau, and information given by hospitalized addicts led "right into his store." His books, however, contained no mention of the disposition of the fifty thousand "goof pills," it was stated.

New York City

Unprecedented License Revocation in "Kickback" Cases.—The licenses of 9 Brooklyn physicians to treat compensation cases were revoked June 3 and 263 others were suspended for periods ranging from one month to two years in what the New York Times stated was a "collective action unprecedented in the annals of the New York state workmen's compensation law." Five roentgenologists were included among the suspensions. Official reprimands were given to 72 other physicians in the borough. The penalties became effective May 31. All the physicians are eligible to appeal the decision, it was stated. Industrial Commissioner Edward Corsi of the state labor department is reported to have said that the disciplinary action was based on recommendations of the compensation board of the Medical Society of the County of Kings, which heard charges against more than 1,000 Brooklyn physicians accused of accepting "kickbacks" ranging from \$1 to as high as \$1,127 over a single period of twelve months.

Similar penalties against physicians in Manhattan, the Bronx, Queens and Westchester County are to be imposed, it was stated. The nine physicians whose licenses to treat workmen's compensation cases have been revoked are Drs. David G. Arenson, Murray W. Arenson, Frank P. Calabro, Frank Crimaldi, Michael S. Distefano, G. Thomas J. Grieco Jr., Marks J. Rosen, Nathan Brumer and John Landberg.

Boric Acid Labeling Changed.—On May 31 the New York City Board of Health amended the sanitary code sections pertaining to drugs by adding a new section, effective June 15, requiring that the labels on boric acid in the form of powder, crystals or solutions shall contain the warning "Caution—not for internal use except as a mouth wash, eye wash or douche." In taking this action the board pointed out that since 1933 the sanitary code of the city of New York has contained section 220, which provides in part that all boric acid powder and solution not stored or kept in the pharmacy of a hospital shall be stored or kept in a medicine cabinet under lock or key especially provided for the purpose. Section 220 was adopted after a boric acid accident occurred in 1933 in one of the city hospitals. In announcing the action on the labeling of boric acid, the board further stated that boric acid was not labeled as a poison because "poison" might decrease the precautionary significance of the "poison label" on certain other very dangerous preparations found in homes such as mercury bichloride, lye and insecticides. Boric acid cannot be classified as coming within this category of toxic substances. It states that "no person shall sell, offer for sale, give away, deal in, or supply, or have in his or her possession with intent to sell, offer for sale, give away, deal in, or supply, any boric acid in the form of powder, crystals or solutions unless the container thereof bears a label with the words, 'boric acid,' and the following warning, legibly and conspicuously printed thereon: 'Caution—not for internal use except as a mouth wash, eye wash or douche.'" THE JOURNAL, May 13, page 161, in announcing another regulation adopted by the New York City Department of Health concerning boric acid solution, erroneously reported that the step had been taken by the state department of health. A report received June 8 states that the regulation concerning the coloring of boric acid was not adopted as such but was issued in the form of an order covering hospitals within the jurisdiction of the city department of hospitals.

OHIO

Conference on Conservation, Nutrition and Human Health.—The third annual conference on conservation, nutrition and human health will be held at the conservation laboratory, Conotton, June 24-25. Among the speakers will be:

- Dr. Charles A. Doan, Columbus, The Role of Iron in Nutrition.
- Dr. Julian D. Boyd, Iowa City, Your Teeth and Your Diet.
- William A. Albrecht, Pb.D., Columbia, Mo., Soil Fertility and National Nutrition.
- John D. Detwiler, Ph.D., London, Ont., Canada's Major Conservation Problems.
- Dr. Jonathan Forman, Columbus, Current Thinking on Nutrition.

PENNSYLVANIA

District Meeting.—A combined meeting of the third, fourth and twelfth councilor districts of the Medical Society of the State of Pennsylvania was held at the Hotel Altamont, Hazleton, June 7. Among the speakers were:

- Dr. Francis F. Borzell, Philadelphia, Aims of the Council on Medical Service and Public Relations.
- Lieut. Col. Leon S. Eagleburger, M. C., Early Medical Experiences in New Guinea.
- Dr. Harold W. Brown, New York, Filariasis.
- Major Arthur Heyman, M. C., Virus Pneumonia.
- Dr. Walter F. Donaldson, Pittsburgh, The Duty of the Individual Physician Toward Organized Medicine.

A feature of the meeting was the presentation of fifty year testimonials to members of the state society.

Philadelphia

New Chief of Communicable Diseases.—Dr. Angelo M. Perri was recently appointed chief of the division of communicable diseases of the Philadelphia Department of Public Health.

Strittmatter Award Goes to Dr. Strecker.—Dr. Edward A. Strecker, professor of psychiatry and chairman of the department, University of Pennsylvania School of Medicine, on May 24 received the Dr. I. P. Strittmatter Award of the Philadelphia County Medical Society "in recognition of his distinguished service in the field of psychiatry and mental

hygiene and his unselfish devotion to the highest ideals of the profession as physician, teacher, author and consultant in civilian and military medicine." The presentation was made by Dr. J. Parsons Schaeffer, chairman of the award committee.

SOUTH CAROLINA

Ten Point Program Begins.—Funds are now being collected to launch the "ten point program" sponsored by the South Carolina Medical Association and approved at its recent annual meeting. Members of the society are being solicited to obtain funds to assist in the employment of an executive secretary to handle the details. Intended to raise the level of medical care for all people of South Carolina and keep the practice of medicine in the hands of the medical profession, the program is presented as follows:

1. **Cooperation:** To promote closer cooperation and better understanding between all groups and individuals concerned with providing and improving medical care for the people of South Carolina.
2. **Political Control:** To prevent political control or domination of medical practice or of medical education.
3. **Study:** To assemble and to amplify studies relative to the need and availability of medical care in each county of the state and in the state at large, and to publicize these findings; To study all agencies in the state which are involved in the administration of medical care as to the type of work which they are doing and the effectiveness of the work which is being done; To promote plans for providing or improving medical care where there is a need.
4. **Care of Indigent:** To prepare a uniform plan for the hospital care of the indigent, financed by public county funds, which may be used by individual counties or by groups of counties for their indigent sick, and to promote the general adoption of such a plan; To promote the establishments of clinics in each county for the indigent ambulatory patients, financed by public county funds and operated or supervised by established hospitals or by the county medical society.
5. **Hospital Insurance:** To make voluntary hospital insurance available to all the people of the state and to promote the widespread purchase of such insurance.
6. **Hospitals:** To study the present availability and facilities of hospitals in the state and to promote the establishment of well equipped and adequately staffed hospitals in needy areas; To establish through the state medical association standards for hospitals in South Carolina and to make public the names of those hospitals which meet these standards.
7. **Group Health Insurance:** To promote the establishment of group health insurance plans in all industries, large and small, in South Carolina.
8. **Standards for Insurance:** To establish standards for insurance companies selling hospital or group health insurance in South Carolina and to publish the names of those who meet these standards.
9. **Medical and Nursing Education:** To promote the securing of adequate funds and facilities for the operation of the Medical College of the State of South Carolina, Charleston; To promote advancement in nursing education and nursing care in the state; To promote the establishment of a loan fund whereby worthy young men and women of the state who are financially unable to meet the strain of a medical education may be able to secure aid.
10. **Education of the Public:** To acquaint the citizens of the state with regard to the agencies and facilities in the fields of medical care, public health, hospital and industrial insurance, and to encourage the people to use them on a much greater scale.

When employed, the executive secretary will devote his entire time to the management of the "ten point program," assembling data, making studies and arranging conferences which concern the individual points of the plan.

GENERAL

Sterling Drug Acquires Stearns and Company.—Sterling Drug, Inc., on May 31 acquired the assets, business and good will of Frederick Stearns and Company, pharmaceutical manufacturers, when directors of the latter company voted on June 30 to retire its preferred stock. According to an announcement the Stearns common stockholders are expected in June to approve the reorganization of the company as well as other details of the transaction. It was stated that the Detroit pharmaceutical house would become a division of Sterling Drug, Inc., with no change of management or personnel contemplated.

Dr. Goodpasture Receives Kober Medal.—Dr. Ernest W. Goodpasture, professor of pathology and associate dean, Vanderbilt University School of Medicine, Nashville, Tenn., was presented with the Kober Medal during the annual meeting of the Association of American Physicians in Atlantic City, May 9. The award is presented annually to a member of the association for notable contributions to the progress and achievements of preventive medicine. Dr. Goodpasture's work has included experiments using the developed egg as a medium for the growth of viruses and bacteria and research in virus diseases; also he demonstrated the cause of mumps and has done important work in typhoid.

Conference of Medical Missionaries.—The fourteenth annual Conference of Medical Missionaries (physicians and nurses) is being held at McCormick Theological Seminary, Halsted Street and Fullerton Avenue, Chicago, June 17-19, under the auspices of the Christian Medical Council for Overseas Work, a committee of the Foreign Missions Conference of North America. On June 16 the program included a tour

of the Wesley Hospital, reports from the Far East and a discussion of photography as a promotional technic. On June 17 topics for discussion included the church faces a new age, bases of cooperation with governments in medical work, union in medical and nursing education and reports from Latin America. Subjects on June 18 will include medical and public health training for nonmedical missionaries and biblical and theological courses for medical missionaries. On June 19 the subject will be bases of interdenominational cooperation in medical work.

Association of Internal Secretions Presents Prizes.—

At the annual banquet of the Association for the Study of Internal Secretions in the Stevens Hotel, Chicago, June 12, the Squibb Award was presented to Edward A. Doisy, Ph.D., professor and director of the department of biochemistry at the St. Louis University School of Medicine, for his many contributions to scientific knowledge, particularly in endocrinology. The award was established by E. R. Squibb and Sons in 1940 to stimulate research in endocrinology. Dr. Doisy's first contribution to the field was concerned with the purification of insulin, but his most widely known work is on the estrogens. He and his associates were the first to separate a pure estrogen, theelin, from human pregnancy urine. The first Ciba Award made by the Ciba Pharmaceutical Company was also presented at the banquet to Dr. Edwin B. Astwood, assistant professor of pharmacotherapy, Harvard Medical School, Boston. Dr. Astwood has made important contributions in the field of sex hormones and the development of the breast and recently has been studying the effect of thiourea and thiouracil on the thyroid gland. The Ciba Award, which was established in 1943 by the Ciba Pharmaceutical Company, is to be presented annually to an investigator of not more than 35 years of age for notable research in the field of endocrinology.

Foundation for Pharmaceutical Education.—The American Foundation for Pharmaceutical Education, which was incorporated in 1943, recently announced its second grant of \$26,000 to supplement a similar grant during the academic year 1943-1944. In addition, \$100,000 has been made available to help some accredited colleges of pharmacy now having serious financial difficulties on account of the shortages of students due to the war. In January the foundation brought out its *Pharmacy Foundation News Bulletin*, the format of which is made up in newspaper style. The foundation was established to assist in fostering the continuation of pharmaceutical education. It was sponsored by the National Drug Trade Conference in recognition of the importance of pharmaceutical education to the manufacturing industry, the distributive drug trade and all public health services. Its members include the American Association of Colleges of Pharmacy, the American Drug Manufacturers' Association, the American Pharmaceutical Association, the American Pharmaceutical Manufacturers' Association, the Federal Wholesale Druggists' Association, the National Association of Boards of Pharmacy, the National Association of Retail Druggists, the National Wholesale Druggists' Association, the Proprietary Association of America and the National Association of Chain Drug Stores. Officers of the foundation, which has its offices at 330 West 42d Street, New York 18, include George V. Doerr, New York, president, Charles S. Beardsley, Elkhart, Ind., vice president, Edwin L. Newcomb, Montclair, N. J., secretary, and Sydnor B. Penick Sr., Montclair, treasurer.

Annual Report of National Foundation.—According to the annual report of the National Foundation for Infantile Paralysis for the year ended Sept. 30, 1943 grants and appropriations totaling \$1,278,836 were made in five main categories: virus research, after-effects research, education, medical publications, and epidemics and public health. General administrative expenses of the National Foundation for the year totaled \$84,970. The report contains a review of the foundation's support of the Kenny method of after-effects treatment even before the arrival of Sister Kenny in this country. The foundation has also spent more than \$500,000 in testing and evaluating the Kenny method and training doctors, nurses and physical therapy technicians in the method. A total of \$107,000 was expended in 1943 at the University of Minnesota alone, where the evaluation of the method was first undertaken under the auspices of the foundation. Since the first course in the Kenny treatment was given there in March 1942 more than 900 doctors, nurses and physical therapy technicians have been instructed and trained in the method at this center, where the National Foundation is still financing the work. The foundation also opened other centers for the teaching of this method at institutions in California, Illinois, Indiana, Georgia, Pennsylvania and New York, and the grants to these institutions have totaled \$140,000 in addition to the Minnesota grants. A total of \$54,000 has been

expended by the National Foundation for scholarships, wool for treatment, distribution of literature, exhibits and demonstrations of the Kenny method. In addition, local chapters of the National Foundation throughout the nation have spent at least \$200,000 in furnishing scholarships for doctors, nurses and physical therapy technicians at these institutions. The report, which deplores a popular misconception that the Kenny treatment is "a miraculous cure," points out that the National Foundation's program for advancing knowledge of the Kenny treatment had resulted in "several thousands" of doctors, nurses and technicians being acquainted with the method by midsummer of 1943, when this country experienced its third largest epidemic. Recently the foundation made a five year grant of \$175,000 to the University of Minnesota to study the physiologic problems concerned with the mechanism of the disease process and methods of treatment of infantile paralysis.

FOREIGN

Appointments at Edinburgh.—Dr. F. A. E. Crew, who is a brigadier in the army medical service and acting as director of biologic research at the war office, has been appointed to the Bruce and John Usher chair of public health at the University of Edinburgh. He succeeds Percy S. Lelean, D.P.H., retired. Before entering army service Dr. Crew was Buchanan professor of animal genetics at Edinburgh University.

Personal.—Dr. Chi-chung Yen, Nanking, who recently resigned as head of the department of health service in the National Health Administration on account of ill health, is now doing part time teaching in the department of public health in National Central University College of Medicine in Chengtu, according to the *Chinese Medical Journal*.—Sir Henry H. Dale, president of the Royal Society, London, is the chairman of the British Penicillin Committee.—Dr. James M. Mackintosh, University of London, has been appointed to the chair of public health, tenable at the London School of Hygiene and Tropical Medicine; the appointment will be effective October 1.

Pharmacy Medal Awarded.—Arthur Stoll, Basel, Switzerland, has been awarded the Flückiger Gold Medal in recognition of his achievements in the field of pharmacy. He has also been awarded the Marcel Benoist Prize for 1942 of the Mareel Benoist Foundation for the furthering of scientific research for his "outstanding contributions to pharmaceutical chemistry, particularly the isolation and synthesis of pure active principles of drugs" (*THE JOURNAL*, June 19, 1943, p. 554). The Flückiger medal is the highest Swiss award for research work in pharmaceutical science and is bestowed every five years. The Benoist prize, also awarded every five years to a citizen of Switzerland or to an investigator having resided at least five years in that country, is given for a "scientific achievement or study which is of importance to human life."

Warrington Yorke Memorial Fund.—The Liverpool School of Tropical Medicine recently created a chemotherapeutic research department to carry on the work of the late Dr. Warrington Yorke, Alfred Jones professor of tropical medicine at the university. To this end a Warrington Yorke Memorial Fund has been opened and subscriptions will be acceptable from colleagues, friends and former students. Contributions should be sent to the Honorary Treasurer, Liverpool School of Tropical Medicine, the Chamber of Commerce, 1, Old Hall Street, Liverpool. Dr. Yorke had carried on original work on trypanosomiasis, blackwater fever, the nematode parasites and many other parasitic and tropical diseases. At the time of his death advanced studies in chemotherapy had been initiated by him, and it was his intention to promote chemotherapeutic research in Great Britain and to establish Liverpool as one of its leading centers.

Study of the Aged.—The Nuffield Foundation Trustees are making a survey of the problems of aging and the care of old people, *Science* reports. The study will receive the cooperation of the British Ministry of Health and the Assistance Board, and its objectives are to collect and collate as much information as possible with regard to the problems, individual, social and medical, associated with aging and old age; the work being done by public authorities and voluntary organizations, and the public and private resources that exist for the care and comfort of old people in Great Britain, and the provision made for old people in those countries which have given special consideration to these problems; medical research on the causes and results of aging, and on the lines on which action might usefully be taken in the future by public authorities and private organizations, including the foundation. B. Seeborn Rowntree, LL.D., chairman of Rowntree and Company, Ltd., London, is chairman of the survey committee.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 13, 1944.

Birth Rate Highest in Eighteen Years

The remarkable fact that during our greatest war our vital statistics have improved has been reported in previous letters. The registrar general's returns for 1943, just published, show that the improvement in our vital statistics continues. In England and Wales there was in 1943 an excess of live births over deaths amounting to 181,127, an increase over the 173,902 for 1942 and a greater increase over the average annual increase for the years 1937-1941 of 88,036. The birth rate for 1943 was 0.7 per thousand above that for 1942 and the highest recorded since 1928. Infant mortality was the lowest on record and 0.2 per thousand lower than that for 1942, the previous low. The proportion of stillbirths to total births was the lowest on record.

For the first time, "effective reproduction rates" for the eleven years 1933-1943 appear in the official figures. These rates differ slightly from the "net reproduction rate," the great advance of Dr. R. R. Kuczynski. He defined this rate as the average number of children who will be born to each newborn baby if the present birth and death rates continue. If this rate is unity, the population is exactly reproducing itself. For 1935 it was 0.75, which, if continued, meant a reduction of population to three fourths of its present size in the next generation. The new "effective reproduction rate" is also based on actual fertility but makes allowance for a continuing improvement in survivorship conditions. It is considered a reasonably accurate index of replacement trends in spite of the element of conjecture. From the low point of 0.747 in 1933 it rose to 0.810 in 1938 but fell to 0.761 in 1941 and rose again to 0.853 in 1942 and (provisionally) to 0.903 in 1943. If the last figure is verified, for the first time in twenty years our reproductive effort has amounted to nine tenths of that required for replacement. The high rate must be connected with the marriage boom following the outbreak of war and now over. This was due to disappearance of unemployment and the war allowances payable for wife and children. The number of marriages in the prewar year of 1938 was 361,768. It rose to 470,549 in 1940 but fell to 295,414 in 1943. However, births in that year were the highest since 1928. It will be seen that the maintenance of our population is still a matter of concern.

Deceiving the Radiologist: A New Form of Malingering

In a communication to the *British Medical Journal* a surgeon, Mr. McNeill Love, tells the story of a man referred to him with probable gastric ulcer. His symptoms were vague, and physical examination revealed nothing abnormal. The x-ray report stated that there was a persistent filling defect in the prepyloric region, the diagnosis being a prepyloric polypus. Mr. Love was about to write a medical report to this effect when a "friend" of the patient, by an indirect route, gave him away. He had secreted chewing gum in his teeth, which was dislodged by the tongue as he swallowed the bismuth meal. This seemed a possible explanation of the filling defect, and a control radiologic examination a few days later showed nothing abnormal. Either the patient failed to replenish his supply of gum or, if a pledget had been swallowed, it successfully negotiated the pylorus. Anyway, Mr. Love was able to give —to the disappointment of the patient—a report that no gastric abnormality was evident. Having recently encountered a similar case, Mr. Love suggests that this method of confusing the radiologist, and thereby the surgeon, may be more familiar to certain sections of the public than to the medical profession.

University Center for Ophthalmic Research

The lord mayor of London gave a luncheon at the Mansion House to promote a plan to establish at Oxford University a center of research and postgraduate study for the prevention of blindness and the better treatment of eye disease. Sir David Ross, vice chancellor of Oxford University, said that much less had been done to prevent blindness than to take care of the blind. The number of the blind was not decreasing in spite of all the efforts of medical science, he said. Three things were needed—improvement of ophthalmic services throughout the country, education of the public in the care of the eyes and research into eye disease. Research could be most effectively pursued, he thought, not in an isolated ophthalmic institute but in a university, where the workers could be in close contact with workers in kindred subjects. We were finding more and more that specialists in one subject could profit from cooperation with specialists in others, Sir David pointed out. It is known, for instance, that many defects of sight were due to nutritional factors, that ocular symptoms were sometimes the first indication of disease in another part of the body and that new drugs, such as the sulfonamides and penicillin, were effective in eye diseases.

Toxic Effects of Tannic Acid Used in the Treatment of Burns

The *Army Medical Bulletin* supports the decision to abandon the regular use of tannic acid in the treatment of burns, which recently was much in vogue, in favor of bland preparations of triple dye or sulfonamides, because of observations made a short time back on the toxicity of tannic acid. Direct evidence has been obtained that tannic acid can produce necrosis of the central zone of the liver lobules in animals, and that it can be absorbed in toxic amounts when applied to extensive burns. Severe liver necrosis has also been found in human subjects dying of burns. In a series of necropsies, which included burns treated with tannic acid and others not treated with it, liver necrosis was found in over half the tanned patients and in none of the untanned. It has been shown that repair of the necrotic areas can occur rapidly when the drug is stopped. But there is no reason for hesitating to apply tannic acid as a first aid measure to small burns under circumstances in which immediate treatment is called for and nothing else is available.

Otologic Research

By arrangement with the Medical Research Council an otologic research unit has been established at the National Hospital for Nervous Diseases in London. It is to be maintained jointly by the council and the hospital, as in the case of the existing neurologic research unit. The director is Dr. C. S. Hallpike, a full time member of the council's scientific staff and aural physician to the hospital. The council has also appointed three new committees to advise and assist in promoting a general program of research work in problems of deafness.

Marriages

ELLARD MELTON YOW, Henderson, N. C., to DR. MARTHA OULTS DUKES of Winston-Salem, May 20.

RALPH L. WHITLEY, Osage, Iowa, to Mrs. Grace Foreman Lowe of Grand Rapids, Mich., April 22.

HAROLD L. HEIGES, Biglerville, Pa., to Miss Helen Kathryn Palmer of Washington, D. C., April 12.

JACOB ROSENWASSER, Mishawaka, Ind., to Miss Dorothy Keimberg of Chicago, February 27.

HENRY FREDERICK BARGE to Miss Nancy Goodrich Tiger, both of Rochester, N. Y., May 27.

LEO A. HOFFMANN, Campbellsport, Wis., to Miss Malinda Haack of Milwaukee, April 11.

Deaths

Stephen A. Douglas Malloy, Yanceyville, N. C.; Kentucky School of Medicine, Louisville, 1897; honorary member of the Medical Society of the State of North Carolina; for many years on the district school committee; medical examiner on the county draft board during World War I; chairman of the county Democratic executive committee for twenty years; for many years coroner of Caswell County and superintendent of the county board of health; a member of the Rotary Club, which in December 1943 presented him with a trophy naming him as "the outstanding citizen of Yanceyville" and "the first citizen of Caswell County"; died in the Memorial Hospital, Danville, March 31, aged 71, of general peritonitis.

Eugene Henry Dickenshied, Allentown, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1881; member of the Medical Society of the State of Pennsylvania; past president of the Lehigh County Medical Society; health officer of Lehigh County from 1935 to 1939 and formerly city health officer; major, National Guard, retired; for many years a member of the U. S. Board of Pension Examiners of Lehigh County; for twenty-one years in charge of the hospital of the American Steel and Wire Company Plant; served as member and president of the school board; consulting surgeon at the Sacred Heart Hospital, where he died April 16, aged 84, of arteriosclerosis.

Milton Homer Bachman @ Youngstown, Ohio; Jefferson Medical College of Philadelphia, 1906; specialist certified by the American Board of Radiology, Inc.; delegate to the International Congress of Radiology at Stockholm, Sweden, in 1928; member of the Radiological Society of North America, Inc., and the American College of Radiology; served with Base Hospital number 52, American Expeditionary Forces, during World War I; formerly on the staff of the McKeesport Hospital, McKeesport, Pa.; died in the North Side Unit of the Youngstown Hospital April 14, aged 59, of carcinoma of the colon.

Edward Lysander Frost @ Buffalo; University of Buffalo School of Medicine, 1892; an Affiliate Fellow of the American Medical Association; formerly instructor in obstetrics at his alma mater; one of the organizers of the Lafayette General Hospital; on the staff of the Millard Fillmore Hospital; at one time coroner of Erie County; for many years attending physician for the Erie County Penitentiary; served on a draft board until commissioned a first lieutenant in the medical corps of the U. S. Army during World War I; died April 22, aged 79, of cerebral hemorrhage.

Adelaide Ward Peckham, East Orange, N. J.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1886; Woman's Medical College of Pennsylvania, Philadelphia, 1902; at one time a school teacher in New York; once emeritus professor of bacteriology at the Woman's Medical College of Pennsylvania, Philadelphia; served as superintendent of the laboratory at the Hospital of the Woman's College of Pennsylvania; died in the Parkview Nursing Home, Bloomfield, May 13, aged 96, of carcinoma of the head of the pancreas.

Henry August Aschauer, Buffalo Hart, Ill.; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; member of the Illinois State Medical Society; died April 10, aged 61, of heart disease.

Fred A. Bartlett, Aurora, Ill.; Hahnemann Medical College and Hospital, Chicago, 1897; died in St. Joseph's Hospital April 26, aged 67, of carcinoma of the intestines.

Edgar S. Bell @ Chicago; Rush Medical College, Chicago, 1896; died in the Michael Reese Hospital April 17, aged 75, of a ruptured appendix.

Winfield Sloane Bell @ Latrobe, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1917; served during World War I; Latrobe school medical examiner; anesthetist on the staff of the Latrobe Hospital, where he died April 1, aged 51, of coronary thrombosis.

Harry Howard Bolton Jr. @ Hilliard, Fla.; Atlanta Medical College, 1914; member of the West Virginia State Medical Association; served during World War I; formerly medical director for Davis Coal and Coke Company at Pierce and Thomas, W. Va.; died April 22, aged 56, of carcinoma.

Harry Cox Brown, Danville, Pa.; Jefferson Medical College of Philadelphia, 1893; member of the Medical Society of the State of Pennsylvania; served during World War I; assis-

tant physician at the Danville State Hospital; died April 2, aged 74, of lobar pneumonia and chronic myocarditis.

John William Campbell, Fargo, N. D.; Rush Medical College, Chicago, 1897; died April 13, aged 74, of heart disease.

Oscar Orville Carpenter, Sully, Iowa; Drake University Medical Department, Des Moines, 1894; on the staffs of the Mary Frances Skiff Memorial Hospital, Newton, and the Mercy Hospital, Oskaloosa, where he died March 9, aged 77, of carcinoma of the prostate.

Andrew Christensen @ Chicago; Jenner Medical College, Chicago, 1901; died in the Swedish Covenant Hospital April 5, aged 82, of acute myelogenous leukemia and chronic cholecystitis.

Carl William Cohoon @ Bay Shore, N. Y.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1924; specialist certified by the American Board of Radiology, Inc.; member of the Radiological Society of North America, Inc., and the American College of Radiology; served with the Canadian Artillery during World War I; on the staffs of the Brunswick Home, Amityville, Mather Memorial Hospital, Port Jefferson, and the Southside Hospital; died April 9, aged 46, of coronary occlusion.

Henry Cook, Fowler, Mich.; Detroit College of Medicine, 1900; past president of the Clinton County Medical Society; on the staff of the Clinton Memorial Hospital, St. Johns; director of the Fowler State Savings Bank; died April 9, aged 69, of coronary thrombosis.

Milo A. Crane, Elmhurst, Ill.; Detroit College of Medicine, 1907; died in a hospital at Madisonville, Ky., April 7, aged 70, of injuries received in an automobile accident.

Harley Layton Cunningham, Ashley, Ind.; Michigan College of Medicine and Surgery, Detroit, 1894; died in the Sacred Heart Hospital, Garrett, April 11, aged 82, of a self-inflicted bullet wound.

Albert Alonzo Davidson @ Augusta, Ga.; University of Nashville (Tenn.) Medical Department, 1893; Vanderbilt University School of Medicine, Nashville, 1893; associate professor of clinical medicine at the University of Georgia School of Medicine; on the staff of the University Hospital; died March 19, aged 70, of carcinoma of the stomach.

Otto Darwin Diehl, Centralia, Ill.; Marion-Sims College of Medicine, St. Louis, 1899; member of the Illinois State Medical Society; district surgeon, Illinois Central Railroad; on the staff of St. Mary's Hospital; died April 17, aged 68, of coronary thrombosis.

Abraham Dungyarsky, Chicago; Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultása, Budapest, Hungary, 1919; died April 9, aged 54, of heart disease.

William W. Eley, Biloxi, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1901; member of the Mississippi State Medical Association; on the staff of the Biloxi Hospital; died April 5, aged 69, of a self-inflicted bullet wound.

William J. Elliott, Dawson, Iowa; Keokuk Medical College, 1898; died in Kellogg March 22, aged 81, of arteriosclerosis and a fractured hip received in a fall.

George Thomas Field, Chase, Mich.; Homeopathic Hospital College, Cleveland, 1878; for many years a member of the U. S. Pension Examining Board; served as local surgeon for the Pere Marquette Railway; died April 20, aged 88, of carcinoma.

Albert E. Fritze, Chester, Ill.; Homeopathic Medical College of Missouri, St. Louis, 1885; member of the Illinois State Medical Society and of its "Fifty Year Club"; served as a member of the city board of health and for many years as a member of the local board of education; formerly mayor of Chester; died April 6, aged 83, of senility.

Columbus Edgar Gannaway, Warren, Ark.; Arkansas Industrial University Medical Department, Little Rock, 1890; member of the Arkansas Medical Society; died March 5, aged 77, of carcinoma of the neck.

William Henry Gaul @ Yonkers, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1913; fellow of the American College of Surgeons; also a pharmacist; surgeon of the city fire department; served during World War I; on the staff of the Moses-Ludington Hospital, Ticonderoga; on the staff and formerly president of the board of Yonkers General Hospital, where he died April 8, aged 59, of heart disease.

Bernard Gordon, Flushing, N. Y.; University of the City of New York Medical Department, 1885; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany.

1887; formerly affiliated with the New York Post-Graduate, Beth Israel and People's hospitals, New York; died April 13, aged 81, of angina pectoris.

Jacob E. Helwig, North Tonawanda, N. Y.; University of Buffalo School of Medicine, 1890; member of the Medical Society of the State of New York; served as county coroner; since 1904 health officer of the town of Pendleton, Niagara County; on the staff of the De Graff Memorial Hospital; died April 7, aged 81, of angina pectoris.

Everett William Henry, Niagara Falls, N. Y.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1923; served with the Canadian Army in Mesopotamia in the early part of World War I and later transferred to the Royal Naval Air Service as a flight instructor; formerly on the staff of the Lying-In Hospital, New York; died March 30, aged 48, of chronic sinusitis and hypostatic pneumonia.

Alton James Higgins, Elgin, Ill.; Illinois Medical College, Chicago, 1908; on the courtesy staff of the Sherman Hospital, where he died April 3, aged 73, of cerebral hemorrhage and essential hypertension.

James Crittendon Hill, Knoxville, Tenn.; Tennessee Medical College, Knoxville, 1900; died April 2, aged 70, of heart disease.

John W. Hinton Jr., Atlanta, Ga.; Atlanta Medical College, 1892; died April 10, aged 73, of coronary thrombosis.

Levin Monroe Irving, Silver Spring, Md.; Baltimore University School of Medicine, 1896; contract surgeon for the National Guard; medical examiner for the Metropolitan and Equitable Life Insurance companies; died in the Suburban Hospital, Bethesda, April 12, aged 68, of coronary occlusion.

Harry Morgan Ivins, Santa Cruz, Calif.; State University of Iowa College of Medicine, Iowa City, 1908; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology and the Iowa State Medical Society; served on the staffs of the Mercy and St. Luke's Methodist hospitals, Cedar Rapids, Iowa; died March 21, aged 65, of cerebral hemorrhage and hypertension.

Joseph Hector Jacques, Fitchburg, Mass.; Harvard Medical School, Boston, 1910; member of the Massachusetts Medical Society; examiner for the Metropolitan Life Insurance Company; on the staff of the Burbank Hospital; died April 15, aged 68, of coronary thrombosis.

Russell Conrad Johnson, Berwyn, Ill.; Rush Medical College, Chicago, 1917; on the staff of the MacNeal Memorial Hospital, where he died April 10, aged 52, of coronary thrombosis.

John Paul Jones, Savannah, Ga.; Emory University School of Medicine, Atlanta, 1915; member of the Medical Association of Georgia; fellow of the American College of Surgeons; served during World War I; on the staff of St. Joseph's Hospital, where he died April 10, aged 55, of coronary occlusion.

James Kay, Philadelphia; Jefferson Medical College of Philadelphia, 1914; clinical professor of medicine at the Temple University School of Medicine; member of the College of Physicians, Philadelphia; physician to the Kensington Hospital for Women; died April 21, aged 53, of coronary disease.

Arthur Ralph Keirn, Dalton, Ohio; Western Reserve University School of Medicine, Cleveland, 1932; member of the school board, park board and the Rotary Club; on the staff of the Massillon City Hospital, Massillon, where he died April 19, aged 37, of cerebral hemorrhage and heart disease.

Archibald Kenton Kessler, Huntington, W. Va.; University of Louisville (Ky.) Medical Department, 1891; member of the West Virginia State Medical Association; past president of the Cabell County Medical Society; formerly physician in charge of the Kessler Hospital and Sanitarium, now known as the Huntington Memorial Hospital, where he died April 12, aged 76, of heart disease.

Albert Wiley Kime, Cottage Grove, Ore.; University of Oregon Medical School, Portland, 1897; at one time a druggist; served as councilman, mayor and member of the school board; for many years health officer; formerly councilman and mayor of Bandon; on the staff of the Eugene Hospital, Eugene; died April 1, aged 85, of coronary occlusion.

David Leighton Kinsolving, Abingdon, Va.; University College of Medicine, Richmond, 1896; served during World War I; secretary of the Washington County Board of Health and county physician for many years; died in the University of Virginia Hospital, Charlottesville, March 12, aged 77, of cerebral hemorrhage and acute myelogenous leukemia.

Walter E. Lilley, Merced, Calif.; Baltimore Medical College, 1894; member of the California Medical Association; coroner of Merced County; served as county health officer; died March 30, aged 75, of angina pectoris.

Clarence Howard Mason, Cincinnati; Miami Medical College, Cincinnati, 1896; member of the Ohio State Medical Association; died in the Christ Hospital March 22, aged 69, of cerebral hemorrhage.

Johann William Mock, Richmond Hill, N. Y.; Christian-Albrechts-Universität Medizinische Fakultät, Kiel, Prussia, Germany, 1901; medical examiner of Selective Service Board 277, Ozone Park; died in the Swedish Hospital, Brooklyn, March 12, aged 68, of coronary occlusion.

Charles Madison Mooney, Columbus, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1900; died March 24, aged 73, of pneumonia.

John W. O'Neill, Chicago; Rush Medical College, Chicago, 1892; member of the Illinois State Medical Society; for many years a member of the staff of the Henrotin Hospital; died April 4, aged 84, of carcinoma of the stomach, uremia, arteriosclerosis and myocarditis.

Charles Othello Ozias, Kansas City, Kan.; Kansas City (Mo.) Medical College, 1892; died February 24, aged 82, of respiratory paralysis, bronchopneumonia and cerebral hemorrhage.

Frank Orren Pershing, Keota, Iowa; College of Physicians and Surgeons, Keokuk, 1893; died March 18, aged 76, of cerebral thrombosis.

David Richard Pickens, Nashville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1907; assistant professor of clinical surgery at his alma mater; past president of the Middle Tennessee Medical Association and the Nashville Academy of Medicine; a captain in the medical corps of the U. S. Army during World War I; served on the staffs of the Protestant and Vanderbilt University hospitals; died March 24, aged 61, of cerebral thrombosis.

Robert James Pilkington, Astoria, Ore.; Willamette University Medical Department, Salem, 1890; member of the Oregon State Medical Society; fellow of the American College of Surgeons; served as acting assistant surgeon for the U. S. Public Health Service; formerly city physician; a member of the old Oregon National Guard; member of the visiting staffs of St. Mary's and Columbia hospitals; died April 2, aged 74, of heart disease.

Alonzo L. Proffitt, Newport, Tenn.; Lincoln Memorial University Medical Department, Knoxville, 1910; past president of the Cocke County Medical Society; died March 13, aged 60.

Eli Francisco Rambo, Webster City, Iowa; Rush Medical College, Chicago, 1917; fellow of the American College of Surgeons; died suddenly March 13, aged 53, of cerebral hemorrhage.

Albert F. Randolph, Koszta, Iowa; State University of Iowa College of Medicine, Iowa City, 1891; died in Marengo March 23, aged 80, of uremia.

George L. Rankin, Paris, Ky.; Kentucky School of Medicine, Louisville, 1904; member of the Kentucky State Medical Association; died March 24, aged 66, of coronary occlusion.

Hardin Williams Reynolds, Bristol, Tenn.; Chicago Homeopathic Medical College, 1900; died February 5, aged 70.

William Matthews Robb, Marlow, N. H.; Baltimore Medical College, 1897; died March 3, aged 72, of coronary thrombosis.

John Patrick Scanlan, Freeport, Ill.; Chicago Medical School, 1927; died in St. Francis Hospital March 10, aged 69, of cerebral thrombosis.

William J. Scott, Baxter Springs, Kan.; University Medical College of Kansas City, Mo., 1900; member of the Kansas Medical Society; past president of the Cherokee and Franklin county medical societies; at one time in charge of Franklin County health unit; formerly on the staffs of the Ellsworth Hospital, Ellsworth, and the Ransom Memorial Hospital, Ottawa; served as Union Pacific Railroad surgeon at Sharon Springs; since 1942 surgeon for the Frisco Railroad; died March 15, aged 67, of carcinoma of the right lung.

John H. Siegel, Collinsville, Ill.; Beaumont Hospital Medical College, St. Louis, 1897; formerly mayor of Collinsville; for many years surgeon of the Pennsylvania Railroad; on the staff of St. Mary's Hospital, East St. Louis, where he died March 28, aged 72, of cerebral hemorrhage.

Cyrenius C. Smith, Bedford, Mich.; the Hahnemann Medical College and Hospital, Chicago, 1884; died in Grand Rapids March 28, aged 83, of uremia and chronic endocarditis.

George Foster Smith, Lawrenceburg, Ind.; Miami Medical College, Cincinnati, 1897; member of the Indiana State Medical Association; served during World War I; secretary of the city board of health; president of the Dearborn County Fair Association; served as county coroner; on the staff of the Margaret Mary Hospital, Batesville; for many years physician for the New York Central and Baltimore and Ohio railroads; died March 26, aged 69, of edema of the lungs and acute congestive heart disease.

George Leon Smith, Swainsboro, Ga.; University of Georgia Medical Department, Augusta, 1881; member of the Medical Association of Georgia; died January 4, aged 83, of pneumonia and influenza.

Hamilton Mills Smith, Camden, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1937; died in Haddon Heights March 26, aged 32, of cerebral hemorrhage due to a self-inflicted gunshot wound.

Willard Wallace Smith ☉ Phoenix, Ariz.; Cleveland Homeopathic Medical College, 1898; Jefferson Medical College of Philadelphia, 1900; fellow of the American College of Surgeons; attending surgeon, St. Joseph's and Good Samaritan hospitals; died March 25, aged 68, of congestive and organic heart disease, pulmonary tuberculosis and chronic nephritis.

James Gregory Stone, Montrose, S. D.; John A. Creighton Medical College, Omaha, 1906; member of the South Dakota State Medical Association; died March 31, aged 61, of cerebral hemorrhage.

Ralph Edgerton Stone ☉ Beverly, Mass.; Harvard Medical School, Boston, 1905; member of the staffs of the Beverly Hospital, the Benjamin Stickney Cable Memorial Hospital, Ipswich, and the North Shore Babies' Hospital, Salem, and consultant physician for the New England Industrial School for the Deaf; member of the National Tuberculosis Association, the Beverly Chamber of Commerce and the Harvard Club of the North Shore; died March 22, aged 66.

Wade Walton Stone ☉ Toledo, Ohio; University of Michigan Medical School, Ann Arbor, 1922; fellow of the American College of Surgeons; on the staffs of the St. Vincent's, Toledo, Mercy, Women's and Children's, and Lucas County hospitals; died March 27, aged 45, of heart disease.

Willis Frederick Stotler, Shenandoah, Iowa; Louisville (Ky.) Medical College, 1893; died in the Tri-County Hospital, Orangeburg, S. C., March 24, aged 77, of cerebral hemorrhage and arteriosclerosis.

Claude Emmett Stump, Richmond, Va.; Medical College of Virginia, Richmond, 1920; died March 6, aged 52.

Thomas J. Taylor, San Diego, Calif.; Western Reserve University Medical Department, Cleveland, 1902; died March 7, aged 79, of angina pectoris.

Albert Thompson ☉ St. James, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1905; for many years president of the board of education of St. James, coroner of Watonwan County and member of the library board; chairman of the nursing board; served as health officer of St. James; president of St. James Telephone Company for twenty-five years; on the staff of St. James Hospital; died March 10, aged 71, of coronary thrombosis.

Jerry A. Trovillion, Winter Park, Fla.; University of Tennessee Medical Department, Nashville, 1890; a retired druggist; a founder and physician in charge of the Harrisburg Sanitarium, Harrisburg, Ill.; died in the Florida Sanitarium and Hospital, Orlando, February 28, aged 80, of pneumonia and chronic bronchitis.

Marcus Othello Tucker, Santa Monica, Calif.; Meharry Medical College, Nashville, Tenn., 1928; member of the California Medical Association; on the staffs of the Culver City Hospital, Culver City, Santa Monica and St. John's hospitals; died March 11, aged 51, of carcinoma of the stomach.

Alvin Putman Twigg, Flint Stone, Md. (licensed in Maryland in 1889); died March 27, aged 84, of pernicious anemia.

Elton Murray Varney, Peabody, Mass.; Medical School of Maine, Portland, 1903; member of the Massachusetts Medical Society; on the staff of the J. B. Thomas Hospital, where he died March 11, aged 65, of coronary thrombosis.

Joseph Louis Veit, Chicago; College of Physicians and Surgeons of Chicago, 1895; director of the contagious diseases branch of the board of health for many years; physician for

the Little Sisters of the Poor for forty-seven years; on the staff of Jefferson Park Hospital; died May 19, aged 72, of chronic myocarditis and diabetes mellitus.

Irvin Arthur Weichbrodt ☉ Seattle; St. Louis University School of Medicine, 1904; past president of the King County Medical Society; fellow of the American College of Surgeons; served during World War I; member of the staffs of the King County Hospital, Swedish Hospital, St. Luke's Hospital and the Providence Hospital, where he died April 13, aged 64, of a self-inflicted bullet wound.

Olive A. Charles Wilson, Meridian, Miss.; Woman's Medical College, Chicago, 1891; formerly secretary of the Green County (Ark.) Medical Society; served as health officer of Paragould, Ark., and Greene County; past president of the Arkansas Society of Women Physicians; died in Rush's Infirmary March 12, aged 84.

DIED WHILE IN MILITARY SERVICE

William Wentworth Heyerdale, Rochester, Minn.; Louisiana State University School of Medicine, New Orleans, 1935; entered the Mayo Foundation as a fellow in surgery on Oct. 1, 1935 and became a consulting physician of the Mayo Clinic in January 1939; began extended active duty as a first lieutenant in the medical reserve corps of the U. S. Army on Aug. 24, 1942; later promoted to captain; died on the island of New Caledonia March 11, aged 36, of injuries received in an automobile accident.

Samuel Charles Holnitsky, Chicago; Loyola University School of Medicine, Chicago, 1927; served with the Civilian Conservation Corps, Sparta, Wis.; a first lieutenant in the medical reserve corps, U. S. Army; died in Washington, D. C., May 6, aged 40, of incised wounds of both wrists.

A. Herman Koplin, Trenton, N. J.; Jefferson Medical College of Philadelphia, 1937; member of the Medical Society of New Jersey; commissioned a first lieutenant in the medical reserve corps of the U. S. Army and later promoted to captain and major; died in the Mount Sinai Hospital, New York, January 23, aged 31, of carcinoma of the stomach.

Patrick Sarofield Madigan ☉ Colonel, M. C., U. S. Army, Washington, D. C.; Georgetown University School of Medicine, 1912; Army Medical School, Washington, and the Medical Field Service School, Carlisle, Pa., in 1921; at one time associate professor of physiology at his alma mater; fellow of the American College of Physicians; member of the Medical Association of Isthmian Canal Zone; entered the medical corps of the U. S. Army as a first lieutenant in 1917; rose through the various ranks to that of lieutenant colonel in 1937; later promoted to colonel; served in France with the Seventh Division, Sixty-Fourth Infantry, during World War I; in 1940 appointed medical adviser to the Surgeon General and the Adjutant General in Washington; served as commanding officer of the Station Hospital at Camp Lee, Va., and as chief surgeon at the Station Hospital at Fort Belvoir, Va., where he died May 8, aged 57, of coronary occlusion.

Robert Clarendon Maxon ☉ Schenectady, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1935; served an internship at the Albany Hospital, Albany, and a residency at the Mary McClellan Hospital, Cambridge; began extended active duty as a lieutenant in the medical corps, U. S. Naval Reserve, on Sept. 7, 1942; died in the U. S. Naval Hospital, San Diego, April 28, aged 35.

John Wesley Moore ☉ Quincy, Calif.; University of California Medical School, San Francisco, 1934; at one time associated with the Civilian Conservation Corps in Contra Costa, Calif.; formerly owner of the Plumas Industrial Hospital; began active duty as a first lieutenant in the medical corps, Army of the United States, on Oct. 22, 1942; later promoted to captain; a flight surgeon in the Air Corps; died in the Southwest Pacific area March 20, aged 36, in an airplane accident.

James Joseph Quinn, Lancaster, Pa.; Jefferson Medical College of Philadelphia, 1940; member of the Medical Society of the State of Pennsylvania; served an internship at St. Joseph's Hospital; commissioned a first lieutenant in the medical corps, Army of the United States; died in an airplane accident in the European area July 8, 1943, aged 30.

Correspondence

PARENTAL INFLUENCE ON THE INCIDENCE OF CANCER

To the Editor:—Dr. C. C. Little's article on the "Parental Influence on the Incidence of Cancer" (THE JOURNAL, May 13, p. 93) gives an excellent picture of the many important findings of the staff of the Roscoe B. Jackson Memorial Laboratory. The second chapter of his paper stimulates some discussion. I wholeheartedly agree with the author's statements "Cancer is cancer whether it is growing at the site of its origin or in tissue culture or in certain hosts in which it has been transplanted. . . . In any or all cases it is its progressive and continued power of cell division that distinguishes it from the rest of the body in which it originated." The following sentence, however, in the article written between the foregoing statements is only partly acceptable: "In any or all situations it is a part of the living and growing tissue of the individual in which it arose." It is a part, but it is a foreign body in the normal body like a heteroploid branch in a plant or a genetic mosaic, e. g. a partly male, partly female *Drosophila*, or the diploid and polikiloploid territories in an otherwise haploid parthenogenic tadpole. I emphasized recently (West Virginia Academy of Science, vol. 16, *West Virginia Univ. Bull.*, series 44, No. 9-I, March 1944, p. 41) the importance of viability and compatibility of aberrant cells arising in normal tissue and the fact that cells with disturbed cell divisions occur in all kinds of tissues and in all ages of the individual from the first cleavage of the egg to the last second of life. These disturbed cell divisions give rise to abnormal cells. The question of viability is concerned with the problem whether the first aberrant cell is stabilized in itself to survive; the compatibility, however, is the problem whether such cells or tissues are able to survive in an environment whose hereditary mass differs from their own. Both the normal fetus and the aberrant tissue are partly different and partly equal in the hereditary mass with "the living and growing tissue of the individual in which they arose." Since pregnancy is a physiologic process, the relationship of the tissues of different hereditary mass is usually well balanced; occasionally, e. g. erythroblastosis fetalis, this difference works detrimentally to one or both parts (Levine, Philip; Burnham, Lyman; Katzin, E. M., and Vogel, Peter: *Am. J. Obst. & Gynec.* 42:925 [Dec.] 1941). The cancer cell is, as Little calls it, "engaged in living independently with a high degree of *primitive* [italics mine] biologic effectiveness." We assume that the cancer cell differs from a normal cell in hereditary mass and that therefore these cells form an aberrant tissue. With Hansemann, Ewing and others I see no reason to assume that the differences in behavior are a return to primitive or embryonal features.

Regarding the mentioned problem of "stimulation" of parthenogenesis in the frog's egg with Bataillon's method, I said in 1920 (*Sitzungsb. d. Preuss. Akad. d. Wissensch.* 24:417) "The activation of the division of an egg is a procedure like the activation of the division of any other cell. It is also subject to the same disturbances as the division of any other cell. . . ." The findings in these experiments were the basis of our tumor research and the study of aberrant cell divisions, now continued under a grant in aid of the Committee on Scientific Research of the American Medical Association.

Little says that "the lighter exposures to ultraviolet or other radiations may disrupt or destroy the action of growth inhibitors and thus release basic potentialities of formerly restricted cells." The impression is given that the cancer cell may be a liberated cell with the same structure but changed physiologic behavior. But, as he said before, "cancer is cancer. . . ." its tissue is definitely different in structure as well as in behavior. Detailed discussions on these problems are given in my publication,

already cited, "Malignancy as a Cytological Problem," which ends with the remarks that the working hypothesis of aberrant cell divisions as starting points of tissue mutations provides a bridge between very dissimilar findings, such as those of strains of animals with definite hereditary factors for tumor formations and purely extrinsic factors as ultraviolet light, x-rays, cancerogenic hydrocarbons and colchicine. The analysis of cell division and its aberrations, on the one hand, and that of viability and compatibility of aberrant cells and tissue, on the other hand, may lead to an understanding of the dynamics of malignant growth. Malignant tumors have been considered as entities in themselves, produced by mysterious causes. In his last paper, published posthumously, Azkanzy (*Ztschr. f. Krebsforsch.* 43:6, 1936) emphasized that the mutation theory brings the tumor cell out of its biologic isolation.

I welcome Dr. Little's article as an important "stimulant" for the study of the biology of tumor formation.

Fritz Levy, Ph.D., M.D., Elkins, W. Va.

To the Editor:—This is a revolutionary age. Scientific discoveries are shaking the pillars of the Temple and we are calmly accepting the new dicta. There are limits, however, to our subservieny. C. C. Little in his paper "Parental Influence on the Incidence of Cancer" (THE JOURNAL, May 13, p. 93) takes liberties with our concept of what is normal. He argues that it is normal for the cell to metabolize and divide. "It is in a biologic sense 'abnormal' for it to sacrifice this basic activity and to replace it by assumption of some specialized form of function the duration of which is definitely limited." From his point of view "cell division [growth] is the natural objective and climax of activity of the normal healthy cell." On this rather thin basis he looks on the cancer cell with its unlimited power of cell division as the normal (healthy?) cell and all other cells, except unicellular animals, as abnormal, because they are restrained through inhibitions. The term normal is derived from "norma" (a carpenter's square) and fixes a rule or pattern, "conforming to established law, order, habit or usage," according to the Century Dictionary. It has come to connote standards for comparison, e. g. a certain regularity of action of the heart, a pitch or tone of absolute acoustical value in music, a pattern of cells and of cell relations to constitute organs and tissues, and so on. Apart from possible subjection to certain mendelian principles there are probably few living things that have less respect for established law, order, habit or usage than the cancer cell. Little's proposition would serve to undermine the value of a term that has been adopted into most languages with little change in spelling and has been used to signify rightfulness, constancy, consistency and absence of defect, attributes that could hardly be associated with those of the cancer cell.

He further asserts that, since the cancer cell has broken away from restraining inhibitions and established its power to grow independently of these curbs, no stimulation is necessary for its growth. The mere removal of the inhibitions sets it free to grow as it pleases: no provocative is required. We are asked if it is not much more simple to believe that the cell division that occurs in tissues following injury by ultraviolet rays is due to destruction of the action of growth inhibitors rather than to the stimulus of cell injury. The orderly character of most repair processes points to a negative answer to this question. That silica, for example, and other irritants cause fibrosis by releasing cells from growth restraint is difficult to swallow. From Little's point of view the carcinogens must act indirectly. Microscopic examination of tumors tends to leave one cold to Little's thesis. Cell division gone mad is encountered not infrequently in cancers. I have in mind a picture of a tumor rich in swollen cells of giant size whose cell bodies are almost filled with mitoses that are largely pluripolar. The appearance sug-

gests the activity of some explosive force that has stimulated mitosis and then disrupted the mitotic figures. It is difficult to conceive of this orgiastic cell division as a passive process, just as it is difficult to apply the term normal to a type of cell whose potentialities are limitless and irregular.

TIMOTHY LEARY, M.D., Boston.

To the Editor:—Dr. Little's masterly review of his own work and that of others (THE JOURNAL, May 13) in the field of cancer and parental influences gives us all food for thought. The concept of inhibition of differentiated cells with subsequent cell division on release has multifold ramifications not only in the study of neoplasms but in that of other pathologic changes.

One possibility immediately comes to mind in the light of recent studies wherein arthritic changes were found to occur after the use of large doses of synthetic adrenal cortex extract. The work of Wooley, Fekete and Little points out that gonad deficiency as in castration releases the adrenal inhibitor with subsequent adrenal changes in certain strains. Is it not probable that aging with its accompanying gonad deficiency will do the same, and may this not be a prime cause of arthritis in certain individuals? We already know of the use of estrogens in some cases of menopausal "arthralgias." Perhaps a new, more complete gonadal extract will inhibit this release mechanism.

Dr. Little's work is the first step to a new concept of the etiology and therapy of many of our present day unsolved pathologic changes.

JOSEF K. GOLDWEBER, M.D., New York.

"SALIVARY AMYLASE AND DENTAL CARIES"

To the Editor:—In the May 6 issue of THE JOURNAL the editorial entitled "Salivary Amylase and Dental Caries" properly emphasizes the significance of the findings that a direct relationship exists between the diastatic activity of saliva and the incidence of dental caries. However, credit for the discovery is misplaced. It should have been given to Florestano, Faber and James (*J. Am. Dent. A.* 28:1799 [Nov.] 1941), whose complete paper on the subject appeared well over two years ago. The editorial does not mention these workers but gives all the credit to Turner and Crane (*Science* 99:262 [March 31] 1944), whose preliminary paper was published less than two months ago. Probably the oversight was due to the failure of Turner and Crane to cite the paper by Florestano and his associates. Whatever might be the reason for the error, attention should be called to this correction.

HARRY G. DAY, Sc.D.,

Department of Chemistry, Indiana University,
Bloomington, Ind.

PHYSIOLOGIC ROLE OF TONSILS

To the Editor:—A recently published report by Trautman and Schreiter (*Zur physiologischen Bedeutung der Tonsillen, Deutsche tierärztl. Wchnschr.* 50:361, 1942) appears to furnish noteworthy new information regarding the physiologic role of tonsils in animals and thus may be of interest to the medical profession. The work of these German investigators was based on the fact that fowl are devoid of tonsils. Therefore they fed pharyngeal tonsils of young and adult mammals (calves and cows) to fowl (young roosters, hens and ducks). The feeding of one tonsil per week caused growth inhibition and disturbances in feathers, comb and wattles soon after feeding. The effects were more pronounced if tonsils of young animals were fed. These observations led to the assumption by the authors that hormones originate from the tonsils, which stimulate the activity

of the thyroid and the pineal gland. With involution of tonsils in maturing animals, the formation of these hormones is assumed to decrease, which would explain the different effects which were obtained when calf's or cow's tonsils were fed. So far no exact information has been obtained about the actual formation and chemical nature of this hormonal substance.

WERNER BRAUN, Berkeley, Calif.

Division of Veterinary Science, University of California.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, June 10, page 449.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Oral*. Chicago, June 17. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written*. Various centers, Oct. 16. Candidates in military service may take examination at their place of duty. Final date for filing application is August 15. Asst. Sec., Dr. W. A. Werrell, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OPHTHALMOLOGY: Chicago, Oct. 5-7. Sec., Dr. S. Judd Beach, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Oral and Written*. Part I. Chicago, Oct. 13-14. New Orleans, Sept. 29-30. New York, Oct. 6-7. San Francisco, Oct. 20-21. Final date for filing application is August 1. Sec., Dr. G. A. Caldwell, 3503 Prytania St., New Orleans.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral*. Chicago, Oct. 4-7. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City, Ia.

AMERICAN BOARD OF PEDIATRICS: *Written*. Locally, Sept. 22. *Oral*. St. Louis, Nov. 8-9, New York, Dec. 15-16. Final date for filing application is Aug. 15. Sec., Dr. C. A. Aldrich, 115½ First Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written*. Part I. Various centers, October 25. Final date for filing application is August 15. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Venereal Diseases: Constitutionality of State Statute Authorizing Physical Examination of Defendant in Criminal Cause Suspected of Venereal Infection.—An Illinois statute provides that, if any person coming before any judge or justice of the peace on any criminal charge is suspected of suffering from any communicable venereal disease, the judge or justice shall cause the defendant to be examined for the presence of venereal disease. If the defendant is found infected, the judge or justice is empowered to commit him or her to an appropriate institution for segregation and treatment. (Ill. Rev. Stat. 1943, chap. 23, par. 392.) The two petitioners were charged with solicitation to prostitution, and the justice of the peace before whom they were arraigned ordered them held without bail and examined to determine whether or not they were infected with venereal disease. Both defendants refused to submit to examination and filed petitions for writs of habeas corpus in the city court of East St. Louis, which, after a hearing, remanded them to the custody of the chief of police. Similar petitions were filed with the circuit court of St. Clair County with similar results. An original petition for writ of habeas corpus was then filed in the Supreme Court of Illinois, which released the petitioners on bail pending a hearing on their petition.

The petitioners contended first that the Illinois statute under which they were held for examination was unconstitutional and void because it deprived them of liberty without due process of law in violation of applicable provisions in both the federal and

state constitutions. The power to detain a person, said the Supreme Court, suspected of having a contagious disease rests in the police power of the state. When a state employs its police power to safeguard the public health it may act in a summary manner even though the result is to deprive a citizen of his liberty. Such powers were recognized and approved in *People ex rel. Barmore v. Robertson*, 302 Ill. 422, at page 427, 134 N. E. 185, 22 A. L. R. 835, where this court said:

Among all the objects sought to be secured by governmental laws none is more important than the preservation of public health. The duty to preserve the public health finds ample support in the police power, which is inherent in the state and which the state cannot surrender. Every state has acknowledged power to pass and enforce quarantine, health and inspection laws to prevent the introduction of disease, pestilence and unwholesome food, and such laws must be submitted to by individuals for the good of the public. The constitutional guaranties that no person shall be deprived of life, liberty or property without due process of law, and that no state shall deny to any person within its jurisdiction the equal protection of the laws, were not intended to limit the subjects upon which the police power of a state may lawfully be asserted in this any more than in any other connection. . . . Generally speaking, what laws or regulations are necessary to protect public health and secure public comfort is a legislative question, and appropriate measures intended and calculated to accomplish these ends are not subject to judicial review. The exercise of the police power is a matter resting in the discretion of the legislature or the board or tribunal to which the power is delegated, and the courts will not interfere with the exercise of this power except where the regulations adopted for the protection of the public health are arbitrary, oppressive and unreasonable. The court has nothing to do with the wisdom or expediency of the measures adopted. . . .

It has almost universally been held in this country that constitutional guaranties must yield to the enforcement of the statutes and ordinances designed to promote the public health as a part of the police powers of the state. In *re McGee*, 105 Kan. 574, 185 P. 14, 8 A. L. R. 831; *State ex rel. McBride v. Superior Court*, 103 Wash. 409, 174 P. 973. That the statute in question is a measure enacted within the police power of the state of Illinois is unquestioned. In the McBride case a similar detention was ordered under an ordinance providing for examination of "all persons who are taken into custody by the police department of the city, who are suspected of being afflicted with any contagious or infectious disease or malady." In that case the relator was arrested charged with the violation of a city ordinance and was turned over to the health commissioner of the city for examination. She was found to be afflicted with a dangerous venereal disease and committed to the isolation hospital of the city and detained there for treatment. She sued out a writ of habeas corpus in the Supreme Court of Washington and in her petition, among other things, alleged that she was arrested without any warrant; that the charge against her was unfounded and untrue, and that the city had no power to pass the ordinance. In a lengthy and well considered opinion that court held:

The power to detain one who is suspected of having a contagious disease rests in the police power, and to this extent the authority of the commissioner is not challenged, but the right to restrain a subject without judicial review is vehemently denied.

The court also stated the general rule to be as follows:

" . . . the public health is the highest law; and whenever a police regulation is reasonably demonstrated to be a promoter of public health, all constitutionally guaranteed rights must give way, to be sacrificed without compensation to the owner." Tiedeman, *State and Federal Control of Persons and Property*, sec. 169.

In *Ex parte Company*, 106 Ohio St. 50, 139 N. E. 204, the Supreme Court of Ohio rejected the constitutional objections of two women who were quarantined for venereal disease, saying in part:

Regulation 23 empowers the health commissioner of each city to make examination of persons reasonably suspected of having a venereal disease. All known prostitutes and persons associating with them shall be considered as reasonably suspected of having a venereal disease. . . . The protection of the health and lives of the public is paramount, and those who by conduct and association contract such disease as makes them a menace to the health and morals of the community must submit to such regulation as will protect the public.

In *Zucht v. King*, 260 U. S. 174, 43 S. Ct. 24, 67 L. Ed. 194, it was held that a municipal ordinance is not invalid because it delegates to the board of health authority to determine when vaccination shall be enforced, without providing any rule for the guidance of the board.

While the legislature, continued the court, through its police powers can delegate to boards of health and municipalities authority to regulate and control all matters which tend to pre-

serve the public health, such regulations cannot be arbitrary, oppressive and unreasonable. The provisions of the statute here in question giving a justice of the peace from the evidence "or otherwise" power to detain persons suspected of having a venereal disease does not mean that he has any authority outside of the evidence appearing before him. The power to compel any person arrested on any criminal charge to submit to an examination is limited to a criminal case in which evidence is produced or circumstances develop tending to indicate that the person charged may reasonably be suspected of being afflicted with a communicable venereal disease and must, from its very nature, present sufficient evidence on which the justice of the peace may issue the order referring the party to some medical officer for such examination. It may be pointed out that a venereal disease most often exists within the veil of secrecy. Certainly one who is charged with soliciting to prostitution and one of lewd and lascivious character is one who may first be suspected of carrying such dreadful affliction. It is most reasonable to suspect that both of the petitioners, if carrying on the practice of prostitution, are indiscriminate and promiscuous in their bodily contacts and are natural subjects and carriers of venereal disease. It was therefore logical and natural that suspicion immediately be cast upon them and necessity dictate a physical examination of their persons. The petitioners furthermore have agreed, for the purpose of this suit, that their arrest was legal and proper, that the complaints later filed and the warrants issued likewise are legal and proper. Such being the case, their detention for examination as suspects carrying venereal diseases is likewise reasonable and proper. The contention that the act violates the constitution of the United States and the constitution of the state of Illinois is not supported by authority. The fourteenth amendment to the United States constitution does not limit the states in the proper exercise of police power.

The petitioners next contended that the Illinois statute in question was void because it contained objects (presumably with respect to detention for examination) not expressed in the title of the act. The title of the act read: "An Act to enable counties or cities to segregate and treat persons suffering from certain communicable diseases." The provisions objected to as stated, authorized the trial judge to require a defendant in a criminal case suspected of venereal infection to submit to examination to determine the presence of venereal disease. A mere reading of the title and the act, said the Supreme Court, demonstrate that the title properly describes the subjects contained in the statute.

The petitioners finally contended that the statute in question violated those provisions of the Illinois constitution which state, in effect, that (1) a defendant has the right to be heard in answer to criminal charges and to defend in person, the right to demand the nature and cause of the accusation and the right to a speedy trial, and (2) bail may not be denied to defendant not charged with a capital offense. The statute in question, answered the Supreme Court, violates no portion of the constitutional provisions referred to, since it is based on the police power of the state and does not fall within the provisions of the criminal code. This likewise answers the contention that the petitioners were held without bail, since quarantine under the police provisions naturally implies such a detention and demand it.

The petition for a writ of habeas corpus was accordingly denied, and the petitioners were remanded to the custody of the chief of police.—*People ex rel. Baker v. Strautz, Chief of Police*, 54 N. E. (2d) 411 (Ill., 1944).

Society Proceedings

COMING MEETINGS

American Gynecological Society, Hershey, Penna., June 19-21. Dr. Howard C. Taylor Jr., 842 Park Ave., New York 21, Secretary.

American Urological Association, St. Louis, June 19-22. Dr. Thomas D. Moore, 699 Madison Ave., Memphis 3, Tenn., Secretary.

Maine Medical Association, Rockland, June 23-27. Dr. Frederick B. Carter, 142 High Street, Portland 3, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1934 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia 207:421-560 (April) 1944

- "Cardiac" or Congestive Cirrhosis: Pathologic and Clinical Aspects. S. Koletsky and J. H. Barnebec.—p. 421.
- Annular Pancreas: Tabulation of Recent Literature and Report of Case. B. E. Stofer.—p. 430.
- *Electrocardiogram and "Two Step" Exercise: Test of Cardiac Function and Coronary Insufficiency. A. M. Master, S. Nuzie, R. C. Brown and R. C. Parker Jr.—p. 435.
- Morphologic Obliteration of Chronic Myeloid Leukemia by Active Tuberculosis: Report of Case. R. W. Heine and D. R. Weir.—p. 450.
- Allergic Agranulocytosis with Complications: Case Report. J. A. Blum.—p. 453.
- Blood Diastase Values in Mumps and Mumps Pancreatitis. S. Zelman.—p. 461.
- Observations on Oral Administration of Citrated Blood in Man: III. Effect on Temperature and White Blood Cell Count. L. Schiff, N. Shapiro and R. J. Stevens.—p. 465.
- Analysis of Results Obtained with Small Doses of Gold Salts in Treatment of Rheumatoid Arthritis. W. B. Rawls, B. J. Gruskin, A. A. Ressa, H. J. Dworzan and D. Schreiber.—p. 528.
- Influence of Large Doses of Vitamin A on Plasma Vitamin A Level. F. Steigmann and H. Popper.—p. 468.
- Method for Standardizing Penicillin. Dorothy H. Heilman.—p. 477.
- *Sulfanilamide as Prophylactic Measure in Recurrent Rheumatic Infection: Controlled Study Involving 131 "Patient-Seasons." R. H. Feldt.—p. 483.
- Study of Sulfonamide Aerosol Inhalation: Supplemental Note. C. C. Chapple and Helen M. Lynch.—p. 488.
- *Sulfadiazine and Its Sodium Compound in Treatment of Meningococcal Meningitis and Meningococcemia. E. Appelbaum and J. Nelson.—p. 492.
- Chief Urinary Pigment: Relationship Between Rate of Excretion of Yellow Urinary Pigment and Metabolic Rate. M. Ostow and S. Philo.—p. 507.
- Electroencephalographic Studies During Fever Induced by Typhoid Vaccine and Malaria in Patients with Neurosyphilis. M. Greenblatt and A. S. Rose.—p. 512.
- Use of Equine Gonadotropin in Male Infertility: Analysis of 127 Patients. C. W. Charny.—p. 519.

"Two Step" Exercise Test of Cardiac Function.—Master and his associates state that in many cases of coronary artery disease with angina pectoris the size of the heart and cardiac pulsations, as seen in the x-ray film, fluoroscopically and by electrocardiogram are normal. In valvular disease patients often complain of dyspnea and pain although the physical examination reveals no evidence of heart failure. The authors report results on 84 Navy personnel between the ages of 17 and 44. The electrocardiogram following the two step exercise has proved its practical value. The test is of importance in differentiating functional from organic heart disease, particularly when physical examination, the x-ray film, fluoroscopy and electrocardiogram are negative. Positive changes in the electrocardiogram after the two step exercise indicate anoxemia of the heart muscle or coronary insufficiency. Both this test and the 10 per cent oxygen anoxemia test were performed on every person considered in this report. The electrocardiographic changes corresponded almost exactly in the two tests. The exercise must be standardized for age and weight, since changes occur in normal persons if the effort is excessive. In normal persons the blood pressure and pulse return to within 10 points of resting levels in one and one-half minutes. The following changes in the electrocardiogram after the two step exercise are considered abnormal: a depression of the RST segment of more than 0.5 mm. in any lead, a change from an upright T wave to an isoelectric or inverted T wave or T wave changes in the opposite direction. The test is of particular value in detecting coronary insufficiency when it is latent. In val-

ular heart disease the test discloses the state of cardiac function and whether the cardiac output is adequate for the coronary arteries. In hypertension the control electrocardiogram often shows evidence of coronary insufficiency and therefore may not change after exercise. There is a lag in return of the blood pressure and pulse following the two step exercise in effort syndrome (neurocirculatory asthenia) and the electrocardiogram gives evidence of anoxemia of the heart muscle following exercise. The authors believe that in this syndrome there is a congenitally small, hypoplastic heart which is inadequate on effort. In chest deformities and in congenital heart disease the electrocardiogram after the two step exercise is valuable. An upper respiratory infection, lung disease, gastroenteritis, fatigue and lack of sleep may produce abnormal results. The electrocardiogram after the two step exercise is a short, harmless and practical test. It should be a routine procedure in men over 40, in the military service and also for eliminating the unfit for special services where unusual physical and mental strain are experienced, as in aviation, submarine personnel and raider forces.

Sulfanilamide as Prophylactic for Recurrent Rheumatic Infection.—Feldt reports a program of prophylaxis that was undertaken among outpatients of the cardiac clinic of the Milwaukee Children's Hospital during two seasons. Patients had previously been assigned in rotation to a clinic held on Monday, Wednesday or Saturday. Children with a history of definite rheumatic fever or chorea and those with undoubted rheumatic heart disease were included in the study. All such patients in the Monday or Saturday clinics received sulfanilamide, and those in the Wednesday clinic acted as controls. In every instance the rheumatic process was regarded as quiescent when the study began. Most patients were given 1 Gm. of sulfanilamide daily in three divided doses. As much as 2 Gm. or as little as 0.3 Gm. daily was used, depending on the blood sulfanilamide level and the presence of toxic symptoms. Altogether, 89 patient-seasons were represented in the treated group and 42 patient-seasons in the control series. No rheumatic recurrences appeared among the children who took sulfanilamide. There were three (7.2 per cent) major and minor recurrences among control patients. Questionable rheumatic episodes were observed with frequency in the control group. The incidence of positive beta hemolytic streptococcus throat cultures was approximately the same in the two groups. Manifestations of sulfanilamide toxicity were neither frequent nor severe. The author recommends sulfanilamide as a relatively safe and effective prophylactic measure against recurrent rheumatic infection.

Sulfadiazine and Its Sodium Compound in Meningococcal Meningitis.—Appelbaum and Nelson used sulfadiazine and its sodium compound in 141 bacteriologically proved cases of meningococcal meningitis and 8 cases of meningococcemia without meningeal involvement. With few exceptions the disease was well controlled and chemotherapy could be safely discontinued when the patient showed a decided improvement in the mental state, was afebrile for twenty-four to forty-eight hours and had received a total of 15 to 20 Gm. of the drug. The rapidity with which most of the serious symptoms disappeared was little short of astounding. Of the 141 patients with meningitis, 139 recovered and 2 died, a mortality of 1.4 per cent. The 8 patients with meningococcemia but without meningeal involvement also recovered. The most common complication was arthritis; it occurred in 15 cases. Toxic reactions occurred in 42 patients. They were most frequently related to the urinary tract. Drug fever was second in importance among the toxic effects. There were 4 cases of encephalopathy resulting from sulfadiazine intoxication. A morbilliform skin eruption was noted in 3 cases and was associated in each instance with a slight rise in temperature. With the exception of the peripheral neuropathies, all the toxic reactions cleared up rapidly following withdrawal of the drug and the institution of remedial measures. In cases of apparent failure of response to sulfanilamide therapy the specific horse serum has not produced a striking effect. Most chemotherapeutic failures were instances of intoxication, often the result of overtreatment. The authors are convinced that, excepting in those cases which are of the

fulminating form or in which a severe associated disease is present, no case of meningococcic meningitis or meningococcemia should fail to respond to properly administered chemotherapy.

American Journal of Psychiatry, New York

100:585-726 (March) 1944. Partial Index

- Clinical Aspects of Traumatic Epilepsy. D. Denny-Brown.—p. 585.
Effect of Intrafamily Discord on Prognosis of Epilepsy. J. C. Price and T. J. Putnam.—p. 593.
Genetic and Environmental Factors in Psychoses of Children. E. C. Yerbury and Nancy Newell.—p. 599.
Process of Hypnotism and Nature of Hypnotic State. L. S. Kubie and S. Margolin.—p. 611.
Frequency and Significance of Movement Mannerism for Military Psychiatrists. L. A. Pennington and R. J. Mearin.—p. 628.
Fatal Cataplexy. O. Billig and W. T. Freeman.—p. 633.
Oxygen Content of Cerebral Blood in Patients with Acute Symptomatic Psychoses and Acute Destructive Brain Lesions. H. E. Himwich and J. F. Fazekas.—p. 648.
Variations in Glucose Tolerance Observations in Schizophrenics Before and After Shock Treatment. L. D. Proctor, J. G. Dewan and B. H. McNeel.—p. 652.
Effect of Pleasant and Unpleasant Ideas on Respiratory Pattern (Spirogram) in Psychoneurotic Patients. J. E. Finesinger.—p. 659.
Electroshock Convulsion Syndrome. P. H. Wilcox.—p. 668.
Mechanism of Insulin Effect on Abnormal Behavior. B. F. Riess and L. Berman.—p. 674.
Anorexia Nervosa: Metabolism and Its Relation to Psychopathologic Reactions. S. M. Small and A. T. Milhorat.—p. 681.

American Journal of Public Health, New York

34:317-434 (April) 1944

- *Immunity in Human Subjects Artificially Infected with Influenza Virus, Type B. T. Francis Jr., H. E. Pearson, J. E. Salk and P. N. Brown.—p. 317.
Epidemiology of Atypical Pneumonia and Acute Respiratory Disease at Fort Bragg, North Carolina. A. D. Langmuir.—p. 335.
Primary Atypical Pneumonia. J. H. Dingle.—p. 347.
Antibiotic Substances, Production by Micro Organisms—Nature and Mode of Action. S. A. Waksman.—p. 358.
Human Serum Albumin as Stabilizing Agent for Schick Toxin. G. Edsall and Louise Wyman.—p. 365.
Surveys of Nutrition of Populations: 3. Vitamin A Nutrition of Rural Population in Middle Tennessee. J. B. Youmans, E. W. Patton, W. R. Sutton, Ruth Kern and Ruth Steinkamp.—p. 368.
Wartime Problems of County Health Officer. H. O. Swartout.—p. 379.
Procurement and Assignment—Industrial Hygiene Problem. C. D. Selby.—p. 383.

Immunity Following Artificial Infection with Type B Influenza Virus.—According to Francis and his associates, epidemiologic evidence indicates that immunity to influenza is acquired by the human subject, presumably as the result of infection. The influenza virus type B was obtained from infected hen's eggs and was inspired by the test subjects by means of a nasal spray. The 60 persons participating in the test, which was begun Nov. 28, 1942, were residents of one ward of the Ypsilanti State Hospital, Ypsilanti, Mich. They were ambulatory males, many of them in the older age groups. Thirty served as untreated controls; the remaining 30 were sprayed with virus. In the next twenty-four hours 27 of the 30 persons receiving the sprayed virus exhibited fever of 100 F. or greater. The disease was characterized by an incubation period of ten to twenty-four hours; the onset was accompanied by chilly sensations, aching, loss of appetite and nausea. The absence of respiratory symptoms or signs was notable. In one fourth of the subjects the illness was sufficiently severe to put the person to bed. In the majority, signs and symptoms of illness had disappeared by the second day after inoculation. All but 4 subjects had at least fourfold rises in antibody titer following the inhalation. Of 30 untreated controls 11 developed significant serologic changes indicating infection incurred while residing in the same quarters. Sixty-five persons in the same ward were available for studies during the last part of March 1943. Fever, symptoms and serologic responses were noted a second time. The illness was milder in the majority of previously infected individuals than in controls inoculated at the same time. Few were refractory to reinoculation. The diminished response to reinfection was most evident in those who had the highest fevers in the first test. The evidence indicates that mild primary infections were as beneficial as the more severe ones.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

28:133-264 (March) 1944

- Control of Venereal Disease in Army. T. B. Turner and W. A. Brumfield Jr.—p. 133.
Studies in Syphilis: V. Evaluation of Fibrosis and Round Cell Infiltration of Parenchymatous Organs (Wartthin) in Tissue Diagnosis of Syphilis. P. D. Rosahn and B. Black-Schaffer.—p. 142.
Experimental Prophylaxis of Chancroid Disease: II. R. B. Greenblatt and E. E. Sanderson, with Collaboration of H. S. Kupperman, Q. Hair and P. Fried.—p. 165.
Sulfonamide Resistant Gonorrhea in Male: Preliminary Report on Proposed Method of Therapy. A. Cohn and B. A. Kornblith, with Assistance of Irma H. Seijo and Roslyn C. Fishman.—p. 179.
Further Study of Chick Embryo as Culture Medium for Spirochaeta Pallida. U. J. Wile and S. A. M. Johnson.—p. 187.
Studies on Therapeutic Procedures in Latent and Late Syphilis: II. Quantitative Serologic Titers Following Intensive Mapharsen Drip Therapy in Latent Syphilis. B. I. Kaplan and I. J. Brightman.—p. 192.
Syphilitic Fever in Present Day Syphilis. L. Goldman, N. P. Ringelman and H. L. Classen.—p. 200.
Massive and Fatal Cerebral Hemorrhage Following Administration of Mapharsen in Young Man with Early Latent Syphilis Cause or Coincidence? M. Leider and J. Rogers.—p. 218.
*Infectious and Serologic Relapse During Intensive Arsenotherapy of Early Syphilis. A. G. Schoch and L. J. Alexander.—p. 221.

Relapse with Intensive Arsenotherapy in Early Syphilis.—During the past fifteen months Schoch and Alexander gave three injections of mapharsen per week for eight consecutive weeks to more than 600 patients with early syphilis. Preliminary observation seems to indicate that the majority of the patients are "cured" by this system of treatment. Approximately 20 per cent must be designated as treatment failures. These failures may be placed in three categories: (1) relapse, (2) progression of the disease and (3) treatment resistance (failure of original lesion to heal). The authors observed all but the last many times, usually during the six months period immediately following completion of treatment. They report 4 cases which are noteworthy because the evidence of therapeutic failure occurred during treatment with mapharsen rather than following completion of the treatment. One patient developed during the second month of treatment a florid, large papular secondary syphilitid involving the hands and forearms. A second and a third patient progressed serologically from negative to positive under treatment, and the fourth patient had a serologic relapse during the second month of the second course of treatment. The authors regard these cases as isolated examples, for they have never observed nor have they found recorded in the literature a case in which the original primary or secondary lesions failed to heal under intensive therapy. It seems possible that the factors responsible for failure during treatment may be identical with factors which result in failure following intensive therapy.

Archives of Internal Medicine, Chicago

73:199-270 (March) 1944

- *Transfusion Reactions Caused by Acquired Intragroup Incompatibilities. G. D. Ayer Jr. and W. F. Kammer.—p. 199.
Thiamine Metabolism, with Particular Reference to Role of Liver and Kidneys. R. H. Williams and G. W. Bissell, with assistance of J. B. Peters.—p. 203.
*Treatment of Gastroduodenal Ulcerative Disease with Sodium Alkyl Sulfate: Preliminary Report. S. J. Fogelson and D. E. Shoch.—p. 212.
*Primary Atypical Pneumonia: Analysis of 738 Cases Occurring During 1942 at Scott Field. C. A. Owen.—p. 217.
*Hodgkin's Disease—Incidence and Prognosis: Statistical Correlation with Clinicopathologic Picture. S. R. Bersack.—p. 232.
Group A Hemolytic Streptococcus Antibodies: III. Study of Simultaneous Infection of Large Number of Men by Single Type. L. A. Rantz, with technical assistance of Georgiana Dole.—p. 238.
Oscillometric Index: Aid in Evaluating Arterial Status of Lower Extremities. S. H. Rinzler, Janet Travell and Helen Civin.—p. 241.
Allergy: Review of Literature of 1943. F. M. Rackemann.—p. 248.

Sodium Alkyl Sulfate in Gastroduodenal Ulcer.—Fogelson and Shoch say that to the present the emphasis has been placed on the corrosive action of the acid component of the gastric juice, with almost complete neglect of the role of pepsin in the genesis of ulcer. It was their objective to determine whether inactivation of pepsin, rather than alteration of gastric acidity, would permit healing of the ulcer. They were able to demonstrate that the therapeutic agents customarily used in the therapy of ulcer inhibit "peptic" activity only through change of the hydrogen ion concentration and not by direct action on

the pepsin. Their next objective was to find a nontoxic material which would inactivate pepsin without altering intragastric acidity. Since Bull had shown that surface active agents would denature protein, investigations were made on these and it was found that sodium alkyl sulfate was a highly effective pepsin inhibitor. This surface active agent was well tolerated by patients who were given 0.2 Gm. every two hours throughout the day. No toxic effects occurred in either the experimental animal or man in the course of seven months' administration of this dose. The survival time of dogs treated according to the Wangenstein technic with massive daily doses of histamine was greatly prolonged by the oral administration of sodium alkyl sulfate. All patients sent to the authors for clinical trial of sodium alkyl sulfate were classified as having "intractable" ulcer, because their symptoms could not be controlled by any orthodox management. Twenty-six of 34 patients with gastroduodenal ulcerative disease had their symptoms controlled by sodium alkyl sulfate. Eight patients obtained no relief from this therapy. Two have already had recurrences on cessation of medication despite definite healing of the original lesions. Sodium alkyl sulfate is therefore not a panacea for all patients with ulcer, but it will permit healing of some ulcers that are resistant to all other types of management.

Primary Atypical Pneumonia.—Owen made observations on 738 cases of primary atypical pneumonia which were recognized during 1942 at the Station Hospital, Scott Field, Illinois. Serious complications were rare; there were no fatalities. The disease showed epidemic tendencies during the late summer and fall, when common diseases of the respiratory tract were at a minimum. Seasonal clinical variations were apparent. Atypical pneumonia attacks congregated groups of people, especially young adults. The degree of contagion and the recoverability of the etiologic agent seem to vary with the severity of the illness. After an incubation period of one to three weeks there develops in the exposed person a nonproductive cough, accompanied or followed by fever, aching, weakness and loss of appetite. Cough is the most troublesome symptom but tends to be relieved within a few days as the fever diminishes by lysis. The pulse rate, the respiratory rate and the leukocyte count are little elevated in uncomplicated cases, and there is a lack of such clearcut findings as are observed in pneumococcic pneumonia. Prolonged convalescence is the rule. If the patient is seen for the first time during convalescence, neurocirculatory asthenia may be suggested. Complications are uncommon, but the occasional development of effusion and empyema warrants recognition of the primary disease. From a military point of view the time lost is significant. Over 20,000 man-days were lost at Scott Field during 1942 from atypical pneumonia.

Hodgkin's Disease.—Bersack reviewed the clinical histories of 225 cases of Hodgkin's disease and the microscopic slides of 186 of these and of 67 of the necropsies. In the great majority of the cases there was sufficient uniformity in the several sections of one lymph node or in several simultaneously taken biopsy specimens from varying sites to warrant the characterization of each case on the basis of the microscopic appearance. The ominous determinant of prevalence of reticulum cells with associated mitoses is statistically of such compelling nature as to require a nomenclature based primarily on the histologic features shown by biopsy. Such a nomenclature, listing the types in the order of increasing duration of the course, has been suggested. The favorable elements in the atypical histologic picture of Hodgkin's disease comprise preservation of follicles, intact capsule, fibrosis, trabeculation or tendency to giant follicle formation, vascularity, presence of derivatives or fibroblast-like cells and persistence in abundant numbers of the small lymphocytic element of the node. The extent of involvement bears a direct relation to the course, being second in importance only to the histologic features. Truly localized lesions in the cervical and axillary regions do occur, and these have a much more favorable prognosis. The inguinal involvement, though clinically localized, appears to have the same significance as generalized spread. The incidence of Hodgkin's disease is not confined mostly to the 20 to 40 year age group. This study showed increased frequency of the lymphoreticuloma type of Hodgkin's disease, with its sarcomatous features, in the older age group.

This contributes to the less favorable prognosis of the disease in older patients. In fact, the incidence of Hodgkin's disease in the older age group will vary as one does or does not include the lymphoreticuloma type. The patients with the generalized forms survived from nine to sixty-four months after the onset of the symptoms, those with superficial glandular forms survived from fourteen to a hundred and seven months and of those with the localized forms some survived forty-three months, while some are still alive after a hundred and thirty-three months.

Connecticut State Medical Journal, Hartford

8:205-270 (April) 1944

- Mental Health vs. Money in Rehabilitation. C. C. Burlingame.—p. 207.
Recent Trends in Therapy of Pulmonary Tuberculosis. K. S. Howlett Jr.—p. 214.
Shock Therapy in Mental Disorders: Indications and Value. N. D. C. Lewis.—p. 218.
Treatment of Cervicitis. D. J. Knowlton.—p. 222.
Scientific Proof. H. W. Smith.—p. 226.

8:273-342 (May) 1944

- Carcinoma of Right Colon. S. C. Harvey and G. J. Connor.—p. 286.
Postwar Industrial Health. R. J. Watt.—p. 288.
Treatment of Diabetes with Combinations of Ordinary and of Protamine Insulin. A. W. Winkler.—p. 291.
Clinical Significance of Bleeding in First Half of Pregnancy. W. E. Studdiford Jr.—p. 294.
Masked Abscess in Colloid Goiter—Case Report. M. Baeker.—p. 298.
Some Notes on Medical History of Tolland County. W. L. Higgins.—p. 300.

Gastroenterology, Baltimore

2:161-232 (March) 1944

- Histology and Histopathology of Gastroenteric Stoma, with Especial Reference to Gastrojejunitis. J. H. Rosenow and J. R. McDonald.—p. 161.
Radiologic Anatomy of Normal Terminal Choledochus. M. Royer and A. V. Solari.—p. 180.
Gastric Fibrosis Involving Duodenum. D. N. Silverman and L. L. Friedman.—p. 186.
Early Gastric Syphilis. M. A. Spellberg and W. J. Norfleet.—p. 191.
Effect of Water Taken with Meals on Gastric Emptying. E. J. Van Liere and D. W. Northup.—p. 195.
Secretion of Gastric Mucus and Hydrochloric Acid in Response to Pilocarpine: Review of Literature. F. Hollander.—p. 201.

Illinois Medical Journal, Chicago

85:161-212 (April) 1944

- Medical Aspects of Governor's Committee on Rehabilitation and Employment. H. H. Cole.—p. 167.
Observation on Clinical Application of Diasone in Human Tuberculosis. C. K. Petter and W. S. Prenzlow.—p. 188.
Two Cases of Inflammatory and Arteriosclerotic Heart Disease: Evaluation of Disease and Cause of Death. O. Saphir.—p. 198.

Journal of Lab. and Clinical Medicine, St. Louis

29:339-450 (April) 1944

- Shock Resulting from Intraperitoneal Implantation of Reconstituted Desiccated Muscle. E. E. Muirhead and J. M. Hill.—p. 339.
*Acute Macrocytic Hemolytic Anemia Occurring Following Administration of Sulfadiazine. J. A. Layne and F. R. Schemm.—p. 347.
Microscopic Observation of Colloidal Particle Agglutination in Protein-Antiprotein Systems. M. Burger.—p. 352.
Bilateral Adrenal Hemorrhage (Waterhouse-Friderichsen Syndrome) Associated with Meningococcal Septicemia: Report of 4 Cases in Adults, with Review of Literature.—p. 357.
Juvenile Diabetes Insulin Sensitivity. H. M. Feinblatt, B. B. Alpert and E. A. Ferguson Jr.—p. 366.
Ineffective Penicillin Chemotherapy of Arthritic Rats Infected with Pleuropneumonia-like Organisms. H. M. Powell and R. M. Rice.—p. 372.
Occurrence of Members of Genus Salmonella in Inhabitants of State Hospitals of Greater Chicago Area. O. Felsenfeld and Viola Mae Young.—p. 375.
Nutritional Status of Staphylococci Anens as Influenced by Proflavine. G. J. Martin and C. Virginia Fisher.—p. 383.
Relationship Between Blood Volume and Blood Specific Gravity in Recovery from Cardiac Decompensation. J. R. Di Palma and P. E. Kendall.—p. 390.

Acute Macrocytic Anemia Following Sulfadiazine.—Layne and Schemm observed an acute macrocytic hemolytic anemia in a patient with bronchial asthma who was receiving sulfadiazine for the treatment of bronchopneumonia. They found that a true reversible cold hemagglutinin was present in the plasma during the period of acute illness. The patient also had retinal hemorrhages and loss of visual acuity. Peterson, Ham and Finland observed that phlebotomies and pulmo-

nary emboli occurred in certain of their patients showing cold agglutinins in the blood. It does not appear improbable, therefore, that the retinal hemorrhages seen in this patient were associated with intravascular clumpings of the erythrocytes, thrombus formation and subsequent damage to the wall of the blood vessels, leading to hemorrhages outside the vessel wall. Improvement in the patient's condition occurred coincident to the administration of 90 units of liver extract on two successive days. Recent experimental observations in animals would appear to justify further study of the effect of liver therapy in the prevention and treatment of macrocytic hemolytic anemia in the human being, particularly those cases occurring subsequent to the administration of the sulfonamides.

Journal National Malaria Society, Tallahassee, Fla.

3:1-74 (No. 1) 1944

- American Mobilization for Conquest of Malaria in United States. J. S. Simmoos.—p. 7.
Malaria Control Program of Army. O. R. McCoy.—p. 11.
Malaria Control Program of Navy. O. J. Brown.—p. 15.
Malaria Control Program of U. S. Public Health Service Among Civilians in Extramilitary Areas. S. B. Freeborn.—p. 19.
Malaria Control Activities of Pan American Sanitary Bureau. H. S. Cumming.—p. 25.
Malaria Control Activities of Institute of Inter-American Affairs. G. C. Dunham.—p. 31.
Facilities for Training of Malariologists in Military and Civil Institutions. H. E. Melency.—p. 39.
Contributions of Bureau of Entomology and Plant Quarantine of Department of Agriculture to National Program for Control of Malaria. F. C. Bishopp.—p. 45.
Activities of National Research Council in National Program for Control of Malaria. G. A. Carden Jr.—p. 55.
Proposed Program to Prevent Spread of Malaria in the United States from Infected Individuals Returned from Abroad. W. A. Sawyer.—p. 61.
Program for Eradication of Malaria from Continental United States. J. W. Mountin.—p. 69.

Journal of Nervous and Mental Disease, New York

99:343-456 (April) 1944

- Psychoneurologic Problems Related to Surgical Transection of Prefrontal Association Areas in Man. G. W. Kisker.—p. 343.
Observations Bearing on Presence of Latent Herpes Simplex Virus in Human Gasserian Ganglion. R. B. Richter.—p. 356.
Biochemical Component of Manic-Depressive Psychosis. P. C. Baird Jr.—p. 359.
Pierotoxin Treatment of Barbiturate Poisoning. J. F. Dorsey.—p. 367.
Rhythmic and Arrhythmic Muscular Activity in Monkeys with Recurrent Convulsive Seizures. H. de Jong, N. Kopeloff and L. M. Kopeloff.—p. 376.
Writing and Drawing of Psychotic Individuals After Electrically Induced Convulsions. E. Stainbrook and H. Löwenbach.—p. 382.
Psychiatric Reactions to War as Seen in Civilians and Soldiers Referred to Mental Hospital. C. T. Prout.—p. 389.
Electric Shock Therapy in Involuntary Psychoses. E. Davidoff and A. Raffaele.—p. 397.
Mr. Jacks and His "Brain Myth." H. J. Mulford.—p. 406.

Michigan State Medical Society Journal, Lansing

43:273-352 (April) 1944

- Dermatitis of Wartime Industries in General Practice. H. R. Foerster.—p. 307.
Avitaminosis in Dermatology and Value and Limitations of Sulfa Group in Skin Diseases. O. S. Ormsby.—p. 315.
Establishment of First Public Health Laboratory in United States. E. E. Kleinschmidt.—p. 320.
Protein Metabolism and Resistance to Infection. P. R. Cannon.—p. 323.

Protein Metabolism and Resistance to Infection.—Cannon points out that when severe food shortage becomes extensive a rising death rate from infectious disease invariably follows. Starvation manifests itself similarly whether due to famine or to disease. Loss of resistance is one of starvation's most conspicuous features. The author relates postmortem and experimental observations which help to elucidate the problem of protein metabolism and resistance to infection. In a series of patients dying from various types of chronic disease, hypoproteinemia was one of the main clinical findings and the high incidence and severity of terminal infections was particularly noteworthy. The author summarizes a number of cases which illustrate the results of severe proteinuria, the consequence of depletion of the protein reserves because of an inadequate intake of the proper kinds of food and the effects of obstructive lesions of the gastrointestinal tract and of other diseases on the blood

protein concentration. Protein metabolism in the adult organism in nitrogen equilibrium can no longer be thought of as a static process in which most of the ingested protein is excreted as urea and only a small portion, the so-called wear and tear quota, is replaced. The exchange of nitrogen between the blood and the body tissues is an extremely dynamic process which goes on continuously. Antibody production requires an adequate supply of amino acids. Animals made hypoproteinemic by a prolonged low protein diet but adequate in calories, minerals and vitamins are more susceptible to spontaneous infections. Animals so managed undergo a loss of capacity to fabricate specific antibodies. Rabbits, if subjected to prolonged protein depletion and then vaccinated against a virulent strain of pneumococci, are unable to withstand infective doses of living pneumococci which are largely innocuous to well nourished rabbits similarly immunized and infected. Rebuilding of the protein reserves would seem to be especially important in protein depleted patients about to undergo serious operative procedures. For starving people entering the danger zones of hypoproteinemia, every effort should be made to rebuild the protein reserves. If nitrogenous nutriment tends to restore the integrity of the antibody mechanism and of the phagocytic cells forming in the bone marrow, the processes both of acquired immunity and of natural resistance should function more effectively.

Surgery, Gynecology and Obstetrics, Chicago

78:337-448 (April) 1944

- *Treatment of Burn Shock with Continuous Hypodermoclysis of Physiologic Saline Solution into Burned Area: Experimental Study. J. K. Berman, L. Peterson and J. Butler.—p. 337.
Local Skin Lesion in Experimental Burns and Its Relation to Systemic Manifestations. R. Elman and C. Liseher.—p. 346.
*Lateral Rupture of Cervical Intervertebral Disks: Common Cause of Shoulder and Arm Pain. R. G. Spurling and W. B. Seoville.—p. 350.
Experimental Study of Sulfonamide Impregnated Sutures. J. A. Glassman, E. F. Fowler and M. V. Novak.—p. 359.
*Solitary Circumscribed Tumors of Lung. T. F. Thornton Jr., W. E. Adams and R. G. Bloch.—p. 364.
Pyogenic Coxitis: I. End Results and Considerations of Diagnosis and Treatment. P. H. Harmon and C. O. Adams.—p. 371.
Origin of Ovarian Adhesions from Organized Liquor Folliculi in Rhesus Monkey. C. G. Hartman.—p. 391.
Surgical Approach for Tumors of Thymus. O. T. Clagett and G. T. Root.—p. 397.
Exploratory Anterior Mediastinotomy in Three Cases of Myasthenia Gravis. P. B. Hardyman and H. H. Bradshaw.—p. 402.
Set of Needles for Suturing Renal Parenchyma. J. E. Dees.—p. 409.
*Rapid Identification of Clostridium Welchii in Accidental Wounds. W. A. Altemeier.—p. 411.
*March Fractures of Tibia and Femur. S. E. Proctor, T. A. Campbell and M. Dobelle.—p. 415.
Variations of Female Sacrum: Their Significance in Continuous Caudal Anesthesia. Mildred Trotter and G. S. Letterman.—p. 419.
Incidence of Liver Stones Associated with Cholelithiasis and Its Clinical Significance. R. R. Best.—p. 425.
Fractured Pelvis Complicated by Gangrene of Extremity—Amputation Under Refrigeration Anesthesia. H. E. Mock and E. H. Tannehill.—p. 429.
Comminuted Fractures of Distal End of Radius. R. Anderson and G. O'Neil.—p. 434.

Treatment of Burn Shock with Hypodermoclysis.—According to Berman and his associates treatment of extensive burns must take into consideration (1) curtailment of the loss of plasma at the site of the burn, (2) restoration of lost plasma and electrolytes, (3) facilitation of dilution and excretion of toxins and (4) control of body temperature. If these primary disturbances can be modified, secondary effects such as hemoconcentration, anoxemia, hypochloremia and hepatic and renal insufficiency may be averted to a great extent. In an attempt to lessen the loss of plasma and electrolytes and to facilitate their reabsorption the authors introduced isotonic solution of sodium chloride subcutaneously at a pressure exceeding capillary hydrostatic pressure, namely 40 millimeters of mercury. They report the results obtained with this procedure on dogs. These studies indicate that there is first a loss of water, then plasma into the burned area. This continues until the tissue space pressure equals the hydrostatic pressure within the capillaries. Then reabsorption begins, but in a reverse manner; that is, colloids are returned first by the lymphatics, which behave as a semipermeable membrane; then crystalloids are absorbed by the capillaries. Isotonic solution of sodium chloride injected hypodermically into the burned area in experimental animals

curtails the loss of plasma and electrolytes, makes possible the dilution and excretion of hypothetical toxins, controls body temperature and prevents pulmonary edema and anuria. As a result of these effects survival time is considerably increased in the treated animals. This method has not as yet been employed on human subjects. Its feasibility is apparent and it could be used in addition to intravenous plasma and other methods. It would decrease the amount of plasma necessary in treating extensive burns. The method constitutes autotransfusion of lost colloids and crystalloids, and a method for supplying quickly the great demand for salt by injured tissues.

Rupture of Cervical Intervertebral Disk as Cause of Shoulder and Arm Pain.—Spurling and Scoville think that pain in the arm and shoulder are too frequently called neuritis. They direct attention to the role of the lower cervical intervertebral disks in the production of shoulder and arm pain. Their data were collected from 12 verified cases of ruptured cervical disks. Pain and stiffness of the neck are usually the first symptoms. Not infrequently after the initial bout of stiff neck the patient will experience no further local discomfort. Symptoms may consist entirely of pain into the shoulder and down the arm into the hand. Any sudden movement of the head or neck, coughing, straining or sneezing may intensify the pain or produce a feeling of "electrical shock" into the arm and hand. Accurate localization is usually possible. In case of rupture of the fifth cervical disk there is pain radiating from the neck into the shoulder and arm with paresthesias (needles and pins or numbness) into the posterior aspect of the thumb. Symptoms are always aggravated by tilting the head to the painful side. There is weakness or absence of the tendon reflex of the biceps brachialis muscle. Rupture of the sixth cervical disk is characterized by pain radiating from the neck into the shoulder and arm with paresthesias into the index, middle and perhaps the ring fingers and the tip of the thumb. Symptoms are aggravated by tilting the head to the painful side. There is weakness or absence of the tendon reflex of the triceps brachialis muscle. The lesion can in most instances be accurately verified by pantopaque myelography. Conservative treatment relieves symptoms in many cases; when it fails, operative removal of the lesion is justified.

Solitary Circumscribed Tumors of Lung.—Thornton and his associates state that there is a group of primary lung tumors that arise in smaller, peripheral bronchi. They give rise to indefinite symptoms and are easily confused with solitary metastatic tumors and infections in the lung. This type of tumor may also simulate mediastinal and chest wall neoplasms. These solitary, circumscribed lung tumors constitute about 25 per cent of all primary lung tumors. There have been 23 patients seen at the University of Chicago Clinics in the past ten years with a solitary rounded lesion in the lung that was at least 2 inches in diameter and at some time was considered to be a neoplasm. The characteristic x-ray appearance of these lesions is a solitary, rounded, dense mass in the lung. The symptoms are indefinite, and physical findings are extremely variable and often absent. The usual diagnostic aids generally fail to establish the diagnosis. Exploratory thoracotomy was the surest method by which an accurate diagnosis could be made. When properly done, a thoracotomy carries as little morbidity and mortality as exploratory laparotomy. Surgical treatment at the earliest possible date is the procedure of choice. Occasionally circumscribed opacities in the lung are tuberculomas or chronic lung abscesses, but most often they are primary lung cancers. Solitary metastatic tumors of the lungs are relatively rare. Primary tumors of the lung can usually be differentiated from metastatic tumors at bronchoscopy. The primary tumor arising within the bronchus is usually easily subjected to biopsy, but metastatic tumors occur in the parenchyma and are not visible on bronchoscopy. In differentiating circumscribed tumors from solitary tuberculous lesions it should be remembered that in some cases of tuberculosis there will be other evidence of acid fast infection in the lung fields or calcification within the lesion itself. Calcification is never seen in a malignant lung tumor, although it may be present in benign lung tumor. Mediastinal lesions offer the greatest problems in differential diagnosis. In at least half of the patients it becomes necessary to explore the lesion to make an accurate diagnosis.

Rapid Identification of Clostridium Welchii in Accidental Wounds.—Altemeier says that the most characteristic cultural peculiarity of *Clostridium welchii* is the stormy fermentation of milk. Using strains which were isolated from accidental wounds, the author studied this reaction regarding its possibilities for application to the direct culture of debrided contaminated tissue. The author has been able to increase the speed and intensity of this reaction to such an extent that a typical reaction will occur within five to ten hours or less. The medium found to be most satisfactory for this purpose can be made as follows: A good grade of fresh pasteurized milk is boiled for five minutes and allowed to cool in a refrigerator for eight to twelve hours. The supernatant cream is removed by siphonage and the remaining milk is placed in culture tubes, 6 to 8 cc. per tube being used. Sterilization is accomplished by heating the milk in a dry oven on three successive days at 120 C. for twenty minutes. When pieces of muscle debrided from contaminated experimental human wounds were placed in suitable mediums a typical reaction occurred in from five to ten hours. During the past two and one-half years the author has used this method successfully at the Cincinnati General Hospital for the rapid detection of the presence or absence of *Clostridium welchii* in over 600 contaminated and infected accidental wounds. The method has been of value in the early diagnosis of gas gangrene while the infection was still in the incipient or localized stage. Whenever the gas bacillus is detected in tissue debrided from a traumatic wound, the patient is placed under close observation for the earliest symptoms of gas gangrene.

March Fractures of Tibia and Femur.—Proctor and his co-workers describe the clinical, laboratory and roentgenologic characters of 7 tibial march fractures and 1 femoral march fracture encountered in a three month period at the Station Hospital, Camp Reynolds, Greenville, Pa. March fractures are often erroneously diagnosed as Garré's sclerosing osteomyelitis, periostitis, osteogenic sarcoma, bone syphilis and tuberculosis of bone. The patient with march fracture is usually of the tall, fair, Nordic type. The age average was 19 years and 8 months. The onset was usually characterized by sudden pain followed by lameness. These symptoms always occurred during exercise such as sustained marching, double timing or obstacle course running. The serum calcium was consistently low and the serum phosphorus slightly elevated. Therapy consisted chiefly in palliative physical therapy and cessation of all forms of forced exercise such as drills, hikes and obstacle course runs. Immobilizing casts were not applied, and the patient was not hospitalized. The authors report 2 clinical histories. The first patient was a soldier with bilateral march fractures of the tibiae. This is the fourth case of the kind to be reported. More of these cases would be discovered if comparison roentgenograms of both tibiae were made in suspected march fractures. The second patient had a march fracture of the femur.

West Virginia Medical Journal, Charleston

40:69-100 (March) 1944

- Acute Respiratory Infections, Including Virus Pneumonia. H. Field Jr.—p. 69.
Complications of Early Pregnancy. A. P. Hudgins.—p. 75.
Management of Severe Burns. W. E. King.—p. 83.

40:101-132 (April) 1944

- Pathology of Intervertebral Disk. W. G. J. Putschar.—p. 101.
Clinical Aspects of Protruded Intervertebral Disk. A. A. Wilson.—p. 107.
Virus Follicles: Foci of Infection in Influenza. M. F. C. Zubak.—p. 112.
History of West Virginia Tuberculosis and Health Association. G. R. Maxwell.—p. 113.

Wisconsin Medical Journal, Madison

43:381-488 (April) 1944

- Clinical Value of Liver Function Tests, with Particular Reference to Hippuric Acid Test. A. J. Quick.—p. 399.
Postoperative Care in Abdominal Surgery. C. L. Kline.—p. 404.
Immunization in Pediatric Practice. E. J. Hueneke.—p. 409.
Blast Injuries of Lungs. G. M. Curtis and J. D. King.—p. 413.
Treatment of Typhoid Fever and Typhoid Carriers, with Review of Recent Literature. M. J. Fox.—p. 419.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Diseases in Childhood, London

18:161-202 (Dec.) 1943

- *Survival of Transfused Erythrocytes in Hemolytic Disease of Newborn. P. L. Mollison.—p. 161.
Spina Bifida and Its Associated Skull Defects. J. B. Hartley and C. W. F. Burnett.—p. 173.
Children in Tuberculosis Colony: Survey of Papworth Children. E. M. Brieger.—p. 178.

Survival of Transfused Erythrocytes in Hemolytic Disease of Newborn.—Mollison made a quantitative estimation of the survival rate of Rh positive and Rh negative erythrocytes in hemolytic disease of the newborn. He found that in 8 of 9 infants with icterus gravis neonatorum, who were given a transfusion during the first fourteen days of life, the Rh positive erythrocytes were eliminated from the circulation within ten days. In the ninth case elimination was not complete until thirty days after the transfusion. In 4 cases in which Rh positive erythrocytes were transfused after the fourteenth day of life destruction was less rapid and in 2 instances was as slow as that of Rh negative erythrocytes in 2 instances. Rh negative erythrocytes transfused to 21 infants with hemolytic disease survived for not less than eighty days in all but 1 case. In the majority of the cases the rate of elimination appeared to be approximately 1 per cent each day and the total time of survival appeared to be approximately one hundred days. In 5 instances the initial rate of destruction was greater, and in 1 exceptional case only 28 per cent of the donor cells survived seven days after transfusion. Because of the absence of an obvious cause for this more rapid destruction in certain cases, it seems possible that there may be some overlap in the destructive mechanism: it may not always be directed exclusively at Rh positive erythrocytes. The survival of transfused erythrocytes in 1 infant within a few hours of birth, in 1 child aged 11 months and in 1 aged 15 months was estimated and found to correspond closely with that of Rh negative erythrocytes in the majority of cases of hemolytic disease of the newborn. This rate of survival is similar to that which has been found in adults. Approximately 1 per cent of the total number of transfused erythrocytes are eliminated from the recipient's circulation each day after transfusion. When an infant with hemolytic disease of the newborn has to be given a transfusion, Rh negative blood of its own group is recommended when serologic tests have been made and it is fairly certain that destruction is due to anti Rh agglutinins. Group O Rh negative blood is recommended when no tests have been made. Group O blood should be used when destruction is thought to be due to anti A or anti B agglutinins. When destruction is due to agglutinins other than atypical anti Rh, group O blood compatible with the mother's serum is probably the safest. In every case direct matching of the donor erythrocytes against the mother's serum seems a desirable precaution before transfusion.

British Heart Journal, London

5:183-246 (Oct.) 1943

- Auricular Fibrillation Late in Course of Diphtheria. A. M. G. Campbell, P. C. Gibson and C. R. T. Lane.—p. 183.
Complete Auriculoventricular Dissociation with High Ventricular Rate in Paroxysmal Tachycardia. C. G. Parson.—p. 187.
Persistent Truncus Arteriosus. R. Marshall.—p. 194.
Coarctation of Aorta, Double Mitral A-V Orifice and Leaking Cerebral Aneurysm. J. N. P. Davies and J. A. Fisher.—p. 197.
Triple Heart Rhythm. W. Evans.—p. 205.
*Treatment of Subacute Infective Endocarditis with Heparin and Chemotherapy. W. T. Cooke and A. B. Taylor.—p. 229.

Heparin and Chemotherapy in Subacute Infective Endocarditis.—Cooke and Taylor state that the incidence of bacterial endocarditis in rheumatic heart disease has been reported to be between 4 and 17 per cent, while in congenital heart disease it is between 14 and 22 per cent. They treated 5 patients with combined chemotherapy and intravenous heparin. All patients died, 1 probably as the result of the heparin therapy. Twenty patients (including the 5 treated with heparin) were

treated with sulfonamide compounds. Five were totally unresponsive and 12 were moderately controlled. Life was prolonged in some, but all eventually died. Three patients became apyrexial; 1 died after forty-five days of normal temperature, but as there was no necropsy neither the diagnosis nor the state of the lesion could be determined. A second died one year after the onset of his infection and eight months after the control of his pyrexia by sulfapyridine: necropsy showed healed lesions of infective endocarditis. The third is well and working at his occupation as a milkman twelve months after his discharge from the hospital. Intravenous heparin did not prove of value in these cases. Prolonged chemotherapy offers a chance of cure to a few patients, though the great majority will not be so benefited. The dangers of such prolonged therapy are small and should not weigh against the chances of a successful outcome.

British Journal of Ophthalmology, London

28:49-104 (Feb.) 1944

- Hereditary Corneal Dystrophy. J. R. Mutch.—p. 49.
Value of Ophthalmic Treatment in Field. G. C. Dansey-Browning.—p. 87.

28:105-156 (March) 1944

- War Surgery of Eye: Analysis of 102 cases of Intraocular Foreign Bodies. H. B. Stallard.—p. 105.
Orbital Cellulitis in Baby Caused by Acute Osteomyelitis of Maxilla. J. A. Magnus.—p. 135.
Wasp Sting. S. W. K. Norris.—p. 139.
*Defective Night Vision Among Soldiers: Dark Adaptation Results and Their Use in Diagnosis. I. C. Michaelson.—p. 140.

Defective Night Vision.—Michaelson investigated the reliability of Koch's dark adaptometer, the normal minimum for form and light perception on the instrument, the minimum form and light senses in subjects complaining of defective night vision and conclusions that might be drawn from these findings in helping to distinguish between psychogenic and organic night visual defect. The instrument is essentially a modified Hecht adaptometer. It is accurate in measuring minimum light and form senses. The normal minimal light and form senses vary but together afford sufficient if not a complete measure of the ability to see in the dark. Persons with defective night vision have a poor minimum form sense, but many persons without defective night vision have also a poor minimum form sense. Measurement of minimum light sense after three minutes dark adaptation in cases of defective night vision does not appear to have much diagnostic significance. Measurement of minimum form sense after thirty minutes dark adaptation of defective night vision does appear to be diagnostically useful. There are indications that in such cases a poor minimum light sense is associated with organic disturbance and a good minimum light sense with functional disturbance as the cause of the defective night vision. Although the groups examined are not large the data are suggestive and sufficient to indicate further investigations and tentative measures in treatment and disposal. Dark adaptometers which measure the minimum form sense and not the minimum light sense have a limited usefulness for two reasons. First, there is a great variation in the minimum form sense among noncomplainers of defective night vision and, secondly, such instruments cannot help in the discrimination between physiogenic and psychogenic defective night vision.

British Journal of Urology, London

15:121-174 (Dec.) 1943

- *Infiltrating Carcinoma of Bladder: New Method of Ureterointestinal Anastomosis Employed in 29 Cases; Indications for Total Cystectomy. H. J. Jewett.—p. 121.
Massive Calculus in Vesical Diverticulum. A. W. Adams.—p. 126.
Multilocular Intrapelvic Scrotal Hydrocele. A. C. Lyapht.—p. 140.

New Method of Ureterointestinal Anastomosis in Carcinoma of Bladder.—Radical cure of a large infiltrating cancer of the urinary bladder usually requires total cystectomy. This procedure must be preceded by surgical diversion of the urinary stream. Jewett devised a simple method for establishing a satisfactory ostium. His method consists of ureterointestinal implantation of the intact ureters in two stages combined with total cystectomy at the second stage. When

properly done it usually is followed by no permanent obstruction to the upper urinary tract. In his series of 29 cases in which both stages of the ureteral transplantation have been completed there were only 3 patients who died as the result of the ureterointestinal anastomosis. The causes in 2 of the patients have been determined and subsequently eliminated by improvement in the surgical technic. To be suitable for radical cure by total cystectomy, metastases must be absent and the tumor must be confined to the bladder wall and be freely movable. The latter condition is best determined preoperatively by recto-abdominal palpation under anesthesia. The opposition to total cystectomy for cancer of the bladder, which is otherwise incurable, has been based on two principal considerations. The results of rerouting the urinary stream have been too uncertain, and a surgical procedure which contemplates two laparotomies seemed too formidable. These objections should be largely eliminated by the results obtained in this series of 29 cases.

British Medical Journal, London

1:139-172 (Jan. 29) 1944

- Localized Subcutaneous Edema with Weakness of Limb Muscles: Syndrome Due to Polyarteritis Nodosa. R. MacKeith.—p. 139.
Emphysema of Lungs. R. V. Christie.—p. 143.
Infant Feeding in Relation to Mortality in City of Belfast. J. Deeny and E. T. Murdock.—p. 146.
Unusual Case of Cerebral Malaria. C. S. D. Don and P. F. Meyer.—p. 149.
Effects on Rats of Prolonged Feeding with Staple African Diet. J. Gillman.—p. 149.

1:173-208 (Feb. 5) 1944

- Principles of Reform in Medical Education. F. M. R. Walshe.—p. 173.
*Pethidine as an Obstetric Analgesic: A Report on 150 Cases. Bedelia Gallen and F. Prescott.—p. 176.
*Obstetric Analgesia with Pethidine. W. Spitzer.—p. 179.
Bone Marrow as a Site for Reception of Infusions, Transfusion and Anesthetic Agents: Review of the Present Position. H. Bailey.—p. 181.
Staphylococcal Septicemia Treated with Sulfadiazine. H. B. Norman.—p. 183.
Spontaneous Rupture of Abnormally Mobile Spleen. J. Dubash and G. F. Langley.—p. 183.

Pethidine (Demerol) as Obstetric Analgesic.—Gallen and Prescott used demerol to induce analgesia in 150 obstetric cases. Detailed records were kept for the first 100 patients, of whom 70 were primigravidas and 30 multigravidas. All were normal on medical and obstetric examination. Since oral administration of demerol was found unsatisfactory on account of frequent vomiting and slow action, the drug was given either intramuscularly or intravenously or by the combined routes. Two schemes of dosage were found to give satisfactory results: (a) an initial dose of 100 mg. intramuscularly, repeated one hour later with a chloral-bromide-opium mixture or with scopolamine; (b) 100 mg. of demerol intravenously followed by 100 mg. intramuscularly an hour later, either alone or with $\frac{1}{450}$ grain (0.4 mg.) of scopolamine. With either technic further intramuscular injections of 100 mg. can be given up to a total of 400 mg. in twenty-four hours. The first injection is best given when the cervix is dilated to 2 fingerbreadths and the patient is having regular contractions. Demerol and scopolamine form an effective combination for producing obstetric analgesia. Demerol does not, however, produce amnesia unless given with adequate doses of scopolamine and barbiturates. Only 5 per cent of the patients failed to obtain relief from demerol. Analgesia was complete or satisfactory in 60 per cent. Given intravenously, demerol produces analgesia in five to ten minutes; intramuscularly, in fifteen. The duration of action is three to four hours. Intravenous administration produces a more rapid and powerful initial action, but intramuscular administration is highly satisfactory and equally effective. Intravenous administration is contraindicated in labor complicated by toxemia or hypertension. Demerol has a definite antispasmodic action on the cervix. In comparison with controls demerol appeared to prolong labor. This was probably due to the selection of the cases. The figures compare well with average figures for the duration of labor. No increase in the incidence of instrumental delivery or obstetric complications was associated with the use of demerol. Reactions in the mother included vomiting, temporary rise of blood pressure, dizziness,

tingling of the limbs and dryness of the throat. These were transient and, although unpleasant, gave no cause for alarm. Of the babies 91 per cent were apparently normal and active at birth; 9 per cent were slow and required resuscitation. There were no deaths among the babies that could be attributed to demerol.

Obstetric Analgesia with Pethidine.—Spitzer investigated demerol hydrochloride for its analgesic and spasmolytic effect on 80 normal mothers in the early first stage of labor. About 17.5 per cent were greatly relieved; 72.5 per cent had good relief, and 10 per cent had no relief. The behavior of excited patients was improved. Primiparas and multiparas were relieved equally. For reasons of safety the oral route of administration was used. The effect of a 25 mg. dose appeared in twenty to thirty minutes and lasted one to four hours. The optimum pain response seemed to occur with a 25 mg. dose repeated after a half hour (two doses). Recent observations in an additional 50 cases revealed that with a single 50 mg. dose and a 25 mg. dose occasionally added 22 per cent of the patients showed complete relief. Demerol (pethidine) had in the majority of cases no objectionable side effects on mother or baby. In 3 mothers transient vomiting and bradycardia were noted. Twice a transient depression in the fetal heart sounds developed, and 5 babies showed a mild degree of asphyxia. The progress of labor was not delayed. Demerol had a remarkable shortening effect on the duration of normal labor, possibly by its direct relaxing action on the uterine cervix. In elderly primiparas with rigidity of the soft parts, the influence on the dilatation period was favorable. No harmful effects on uterine tone or perineum by the shortening of labor were observed, apart from 2 cases of postpartum hemorrhage and 1 of second degree perineal tear. Demerol hydrochloride if carefully dosed and timed is a useful analgesic and spasmolytic drug in obstetrics.

1:209-244 (Feb. 12) 1944

- Studies on Hepatic Dysfunction: I. Carbon Tetrachloride Poisoning Treated with Casein Digest and Methionine. J. Beattie, P. H. Herbert, C. Wechtel and C. W. Steele.—p. 209.
Clinical Evaluation of Some Tests of Liver Function. G. Higgins, J. R. P. O'Brien, Alice Stewart and L. J. Wits.—p. 211.
Some Uses for Dry Cold Therapy and Proposed Cooling Cabinet. W. G. Bigelow and E. C. G. Lanyon.—p. 215.
Etiology of "Immersion Foot." B. W. Goldstone and H. V. Corbett.—p. 218.
Results of External Prophylactic Version. M. V. Trubkowitz and B. A. Arehangel'sky.—p. 220.

1:245-278 (Feb. 19) 1944

- *Some Observations on Hospital Dust, with Special Reference to Light as Hygienic Safeguard. L. P. Garrod.—p. 245.
Transmissibility of Hemolytic Streptococcal Infection by Flies. R. A. Shooter and Pamela M. Waterworth.—p. 247.
Haldane Hemoglobinometer: I. Iron, Oxygen, and British Standards Institution Color Standard. R. G. MacFarlane and J. R. P. O'Brien.—p. 248.
Hemoglobin Equivalent of B. S. I. Haldane Standard. E. J. King, Margaret Gilchrist and Audrey Matheson.—p. 250.
*Cadmium Poisoning. P. Ross.—p. 252.
Dry Blood Test for Typhus Fever: Preliminary Report. P. N. Bardhan, N. Tyagi and K. Boultos.—p. 253.

Hospital Dust.—Garrod states that, under the conditions existing in some of the hospital wards studied, dust was so infective that, without the aid of any other vehicle, it could well have caused all the accidental infections observed. It was found that in wards where there are patients with hemolytic streptococcus infections dust may contain these organisms in large numbers, particularly near infected patients' beds. Hemolytic streptococci were found to be most numerous in floor dust and were absent from many specimens of dust in the same wards collected from sites on or close to the windows. They were more often found in dust from exceptionally dark wards than in comparable specimens from normally lit wards. Hemolytic streptococci of group A, type 11, in naturally infected dust survived in small numbers in the dark at room temperature for 195 days. Ordinary diffuse daylight is bactericidal to hemolytic streptococci. The interposition of glass does not prevent this effect, and it occurs even under winter conditions in England. These facts suggest the possibility that good natural lighting may be a factor in preventing the atmospheric spread of infection in surgical wards and elsewhere.

Cadmium Poisoning.—Ross mentions the following industrial uses of cadmium: the process of plating; the preparation of certain fusible alloys; the manufacture of specialized solders, dry batteries, paints, pigments and metal bearings, and in the car and armaments industries. The industrial risks occur during the smelting of ores, the preparation and flame cutting of cadmium alloys, cadmium welding, electroplating and metal spraying. It is not universally realized that finely divided cadmium is inflammable, producing dangerous fumes of cadmium oxide. The author reports an outbreak of cadmium poisoning which occurred when a workman, while cleaning out a cadmium recovery chamber, dropped some red hot ash from a lighted cigarette on the floor and ignited the cadmium dust deposited there. (The man was smoking, contrary to regulations.) As the metal was in a finely divided state it began to glow and soon became a red hot mass emitting yellowish brown smoke of cadmium oxide. Within a few minutes the wood and canvas filter frames were blazing furiously. The fumes filled the shop rapidly and affected 23 persons. The immediate effects noted were dryness of the throat, constriction of the chest, cough, and weakness of the legs. Two complained of irritation of the eyes, and a few others had headache and giddiness. Delayed effects began to manifest themselves about three hours later. Nausea, epigastric pain, precordial constriction, dyspnea and prostration were fairly constant symptoms, and ague occurred in 14 cases. In the event of prolonged exposure pneumonia may supervene, and in fatal cases there may be signs of kidney and liver involvement. No fatality occurred in this series. The author describes 1 typical case. A survey of the incapacity caused by the accident shows that of the 23 men involved 7 lost no time, while 4 were absent for one day, 3 for six days, and 1 for nine days. Of the more seriously affected, 1 was away for four weeks, another for seven weeks, and the fireman, who had pneumonia, was disabled for two months. In the event of a fire in a department where cadmium is used the firemen must wear suitable respirators. The rule "No smoking" should be strictly enforced where cadmium powder is present.

1:279-314 (Feb. 26) 1944

Fainting in Blood Donors. Report by Subcommittee of Blood Transfusion Research Committee.—p. 279.

Pulmonary Tuberculosis of Bovine Origin, with Notes on Bovine Infection in Three Families. L. J. Cutbill and A. Lynn.—p. 283.

Patch Testing in East Coast Town. Elenora J. Simpson.—p. 286.

*Sulfaguanidine in Treatment of Flexner Dysentery. H. G. Smith.—p. 287.

Hemolytic Disease of Newborn: Preponderance of Homozygous Rh Positive Fathers. G. L. Taylor and R. R. Race.—p. 288.

Sulfaguanidine in Flexner Dysentery.—Smith reports the results of administering massive doses of sulfaguanidine to 44 young women between the ages of 17 and 37 with Flexner dysentery. Five consecutive negative results were obtained for each patient after conclusion of the treatment. About the ninth day of the treatment 21 patients developed a toxic rash. Apart from one circinate urticaria, the rashes were pink and morbilliform. The presence of a scarlatiniform and a petechial type was noted among the latter. There was no relation to a high blood concentration of the drug. Eight patients out of 12 reacted to a sensitization dose of sulfaguanidine. In some cases the constitutional upset was severe. There was no response to sensitization doses of other sulfonamides. It is suggested that the guanidine radical may be the sensitizing agent. The high incidence of toxic rashes suggests care in dosage.

1:315-348 (March 4) 1944

Cranial Nerve Palsies with Herpes Following General Anesthesia: Report from Central Middlesex County Hospital. J. H. Humphrey and Margaret McClelland.—p. 315.

Hazards in Use of Closed Circuit Technic for Trilene Anesthesia. S. Carden.—p. 319.

Intelligence and Season of Conception. J. A. F. Roberts.—p. 320.

*Bacillary Dysentery in Dundee: Comparative Study of Treatments. W. H. Jamieson, J. Brodie and D. Stiven.—p. 322.

Meningococcal Jaundice. C. Crawford.—p. 325.

Treatment of Bacillary Dysentery.—Jamieson and his collaborators set forth the clinical and bacteriologic results obtained in 200 confirmed cases of bacillary dysentery. Attention was given to the effects of different methods of treatment not only on the course of the disease but also on the incidence

of the carrier state in convalescence. The diagnosis of dysentery was confirmed both clinically and bacteriologically in all of the 200 cases. In the 50 patients who were treated with aperients an initial dose of castor oil was given followed by thrice daily doses of magnesia magma for children and of sodium sulfate for adults, the dosage being reduced as abnormal constituents disappeared from the stools. Sulfaguanidine was used for 100 patients, and the remaining 50 patients were treated with chalk mixture. Abundant fluid was given to all three groups of patients. The authors found that the use of sulfaguanidine in bacillary dysentery gives results superior, both clinically and bacteriologically, to those from aperients and chalk, but, even so, 30 per cent of cases are still bacteriologically positive in convalescence, as compared with 50 per cent with the other treatments. The employment of the enrichment technic is amply justified, while direct plating, used alone, can yield a false sense of security as regards freedom from infection. During convalescence no less than 36 per cent of the positive results were obtained only by the enrichment method. Moreover, a number of cases would not have been confirmed bacteriologically and a further number would have been discharged prematurely had not the enrichment technic been employed. The convalescent carrier rate in the sulfaguanidine series was lower than in the other two, but the difference would have been even more striking had only direct plating been employed; for without enrichment the percentage of cases positive after sulfaguanidine would have fallen from 30 to 19 as compared with from 50 to 38 per cent and from 52 to 46 per cent after aperients and chalk respectively.

Journal of Royal Army Medical Corps, London

82:51-98 (Feb.) 1944

Hygiene Visit to the Ancient World. M. Markowe and A. W. S. Thompson.—p. 51.

*Outbreak of Smallpox in British Troops with Note on Use of Sulfathiazole in Treatment. A. W. D. Leishman.—p. 58.

Effects of Common Anesthetics on Circulation. V. Keating.—p. 63.

Investigation of Outbreaks of Dysentery at Military Hospital in South Africa. M. H. Finlayson.—p. 68.

Lightning and Central Nervous System. J. H. Paterson and J. W. A. Turner.—p. 73.

De Excretio Comburendo, or Anto-da-Feece in the Western Command. R. A. Mansell.—p. 76.

Sulfathiazole for Smallpox in British Troops.—Leishman says that during the period from November 1942 to April 1943 there was an epidemic of smallpox among the civil population of the area of India in which his base hospital was located. The British troops in the neighborhood were soon affected and altogether 68 patients with smallpox were admitted to the author's hospital. They were almost invariably admitted to the hospital in the preeruptive stage as having undiagnosed fever and it proved impossible to distinguish smallpox from simple fevers and malaria. It became necessary to operate an "observation ward" to which every patient with fever was first admitted. In this ward barrier, patients were isolated for a minimal period of three days or until such time as the possibility of smallpox could be ruled out. Every patient, whatever his complaint, was vaccinated on admission unless he had evidence of successful vaccination within the last twelve months. Universal vaccination during an epidemic is not without its risks. At least 4 of the patients had an aggravated form of the disease from being vaccinated while already incubating smallpox; 2 of these died. The most consistently useful diagnostic sign was the finding of even a single vesicle which showed umbilication. The local therapeutic measures were those usually recommended; spraying or painting the skin with 5 per cent potassium permanganate or dilute phenol (1:40), mouth washes and inhalations, and mild protein silver and atropine drops for the eyes when the conjunctivas were involved. Warm permanganate baths were given as soon as the condition permitted it. Xylene was given in doses of 30 minims (1.8 cc.) in milk, at first four times daily and later three times and then twice daily, but no dramatic results were observed. Sulfapyridine, which was given in an average total dose of 30 Gm., did not appear to influence the disease. Sulfathiazole was given to 12 patients. Results suggest that this drug is more effective than the other sulfonamides and that it merits further trial.

Lancet, London

1:139-170 (Jan. 29) 1944

- Psychosomatic Casualties in the Middle East. A. Torrie.—p. 139.
 *Triffin Nail and Plate for Pertrochanteric Fractures. G. K. McKee.—p. 143.
 *Hemolytic Disease in the Newborn: The Rh Factor. F. A. Langley and F. Stratton.—p. 145.
 Diabetogenic Action of Alloxan. H. Hughes, L. L. Ware and F. G. Young.—p. 148.
 Notes on Typhus Fever in the Middle East. W. Brockbank and S. R. F. Whittaker.—p. 150.
 Portal Pyemia with Recovery. N. Alders.—p. 151.

Triffin Nail and Plate for Pertrochanteric Fractures.—In pertrochanteric fractures the line of fracture is always much lower posteriorly than anteriorly. This renders the lower fragment difficult to hold, because as the bone of the lateral femoral cortex rapidly increases in thickness below the trochanteric region it is particularly liable to split into the line of the fracture posteriorly when an attempt is made to insert a nail. A plate which would be fixed to the head of the nail and screwed into the lateral aspect of the shaft of the femur seems to be a simple answer to the problem. In McKee's series of 17 cases this form of treatment has been surprisingly successful as a means of fixation, and, although the operative technic is slightly more difficult than the simple insertion of a nail, the degree of fixation and the ultimate results seem to be superior. The more secure hold obtained by the nail and plate compared with that obtained by the nail alone has made it possible to get these patients up earlier, and the length of stay in bed has been reduced from six weeks (as for a transcervical fracture) to three weeks. In an exceptional case in which there has been excessive comminution at the site of fracture, this period of recumbency will have to be longer. After three weeks the patients are instructed to walk with crutches, and this partial weight bearing is continued for twelve weeks at least, when a roentgenogram is made; if there is evidence of union, weight bearing with two sticks for four weeks more is recommended. If this after treatment is adopted, there does not seem to be any tendency to adduction deformity, provided the operation was mechanically sound. No additional fixation, such as a plaster of paris spica, is required. The author concludes that the combination of the triffin nail and the flanged plate is the most satisfactory method of internal mechanical fixation for pertrochanteric fractures of the femur.

The Rh Factor in Hemolytic Disease of the Newborn.—Langley and Stratton investigated 21 cases of hemolytic disease of the newborn clinically, pathologically and serologically. They were able to confirm the relation of this condition to the Rh factor, and in 19 of 21 cases an anti Rh agglutinin was found in the maternal blood. Of 12 necropsies, 11 showed the characteristic extramedullary hemopoiesis of hemolytic disease of the newborn. The breast milk of 10 of the mothers was examined, and 7 samples were found to contain the anti Rh agglutinin.

1:171-202 (Feb. 5) 1944

- Erythroblastic Anemia of Childhood (Cooley's Anemia) in Cyprus. A. L. Fawdry.—p. 171.
 Postnasal Swab in Diagnosis of Pertussis. R. Cruickshank.—p. 176.
 Apparatus for Administering Oxygen. W. I. Card, W. J. Griffiths and B. A. McSwiney.—p. 177.
 *Thiourrea Causing Granulopenia and Thrombopenia. P. B. Newcomb and E. W. Deane.—p. 179.
 Vitamin C Nutrition in Hospital: with Observations on Case of Scurvy. F. T. G. Prunty and C. C. N. Vass.—p. 180.
 Meniscectomy in Soldiers: Review of Cases Discharged from an Army Convalescent Depot. J. J. R. Duthie and J. G. MacLeod.—p. 182.

Thiourrea Causing Granulopenia and Thrombopenia.—Newcomb and Deane think that, although it is still a question whether thiourrea will be used as a long term treatment in place of surgery for exophthalmic goiter, it is suggested as a good method of preoperative treatment. The authors used it for a woman with a moderately severe degree of thyrotoxicosis. After a total of 83 Gm. of thiourrea had been given over a period of five weeks the woman suddenly had two epistaxes and then developed generalized purpura and ecchymoses, with spots on the buccal mucous membrane, which ruptured leaving painful ulcers. Thiourrea was immediately stopped. The second day after the purpura was first seen the leukocytes had fallen to 3,700 with 16 per cent polymorphs, and there were only 9,000

platelets. Following transfusion of a pint of fresh blood, bleeding from the gums ceased and the blood count gradually returned to normal. The purpura and ecchymoses faded and there has been no further hemorrhage. During the time this patient was in the hospital no other drugs had been given, and it seems fairly certain that the toxic effects were due to thiourrea.

1:203-234 (Feb. 12) 1944

- *Anaerobic Infections in Tripolitania and Tunisia. J. D. MacLennan.—p. 204.
 Supplementary Feeding in Pregnancy. Margaret I. Balfour.—p. 208.
 Adolescent Kyphosis. T. J. B. A. MacGowan.—p. 211.
 Rhesus Antibody in Rh Positive Mother Causing Hemolytic Disease of Newborn. A. J. McCall, R. R. Race and G. L. Taylor.—p. 214.
 Fitting Industry to Human Needs: Contribution of Medicine to Industrial Well-Being. T. A. L. Davies.—p. 223.

Anaerobic Infections in Tripolitania and Tunisia.—MacLennan states that when fighting moved from the Western Desert to the more cultivated areas of Tripolitania and Tunisia the incidence of gas gangrene increased from 3.4 per thousand wounded to approximately 6 or 7 per thousand wounded. In 28 of 44 cases of gas gangrene a major artery had suffered severe trauma; in 1 other instance a major vein was injured. In only 2 cases had the infection been apparently precipitated by long continued application of a tourniquet. The wounded from small skirmishes between patrols were often evacuated with difficulty and after some delay and were therefore more liable to gas gangrene than those injured in pitched battles; the figures being 8 or 9 per thousand wounded in patrol encounters as against 2 or 3 per thousand wounded in battles. "Clostridial myositis" is preferable, as a descriptive term, to "gas gangrene." Gas is often abundant in anaerobic cellulitis, but in true clostridial myositis it is rarely a prominent feature until late in the disease. The essential features of clostridial myositis are pain, swelling, edema and a rapidly increasing toxemia. Of 44 patients, 13 died. The recovery rate of 70 per cent, which compares favorably with other recorded series, is attributed to accurate diagnosis, good surgery and intensive serotherapy. Antitoxin must be administered early, repeatedly and in adequate amounts, intravenously or intramuscularly; three ampules may be regarded as a minimum therapeutic dose. As long as toxemia persists, antitoxin therapy must continue. It appeared that conservative but adequate surgical procedures aided by chemotherapy, intensive serotherapy and appropriate measures of resuscitation gave better results than more drastic operative measures.

1:235-266 (Feb. 19) 1944

- Fractures of Femoral Shaft: Mechanics of Reduction and Fixation. J. Charnley.—p. 235.
 Accuracy of Hemoglobin Methods. E. J. King, Margaret Gilchrist and G. E. Delory.—p. 239.
 Early Rehabilitation in Abdominal Surgery. A. Shorter.—p. 243.
 Acute Necrosis of Liver: An Unusual Case. E. R. Van Langenberg.—p. 244.
 Peripheral Arterial Embolism. L. W. C. Massey and P. Steiner.—p. 245.
 Sulfapyridine Anuria Treated by Unilateral Renal Decapsulation. F. L. K. Lewis.—p. 247.
 Aseptic Cavernous Sinus Thrombosis, with Recovery. H. S. Le Marquand and E. G. Recordon.—p. 247.

1:267-298 (Feb. 26) 1944

- Prevention of Neonatal Disease and Death. L. G. Parsons.—p. 267.
 Prolonged Post-Traumatic Amnesia: Findings at Operation. A. A. McConnell.—p. 273.
 Hippuric Acid Liver Function Test During Treatment with Arsenicals. R. W. Riddell and T. E. Anderson.—p. 275.
 Sulfamezathine in Lobar Pneumonia: Comparison with Sulfapyridine. G. Melton.—p. 277.

1:299-328 (March 4) 1944

- Penetrating Wounds of Chest: Review of 291 Cases in Middle East. W. F. Nicholson and J. G. Scadding.—p. 299.
 Measurement of Circulation Time with Saccharin. F. P. Duras.—p. 303.
 *Penicillin in Sulfonamide Resistant Pneumonias, with Special Reference to Staphylococcal Infection and Empyema. T. I. Bennett and T. Parkes.—p. 305.
 Complications of Trilene Anesthesia. A. R. Hunter.—p. 308.
 Pneumonoconiosis in Boiler Sealers. P. G. Todd and D. Rice.—p. 309.

Penicillin in Sulfonamide Resistant Pneumonias.—During the period before and after Christmas 1943, Bennett and Parkes tested the value of penicillin in a group of serious pulmonary infections. The cases were chiefly complications of

influenza, which at times reached the proportions of an epidemic. The cases were selected in that there appeared to be danger of death and sulfonamide treatment had been resisted. They were further selected in that treatment was adopted only after laboratory demonstration that the invading organism was sensitive to penicillin. Reports are presented of 4 cases of staphylococcal pneumonia, 2 of streptococcal empyema and 1 of staphylococcal empyema. Of these cases, 6 were wholly and 1 partially resistant to sulfonamide therapy. In all, penicillin was administered, with complete recovery. The observations on these patients must not be thought to suggest that penicillin is of supreme value in the treatment of influenza. All cases were seen late in the disease, when secondary infection was well established, and there is at present no evidence to suggest that penicillin will abort the primary infection, usually believed to be due to a virus. Moreover, nearly all cases were staphylococcal infections, and past experience has been that the staphylococcus is a rare invader during epidemic influenza. These observations suggest that penicillin in no way alleviates the profound debility which follows complicated influenza. The fact that 4 patients with severe staphylococcal bronchopneumonia recovered strongly suggests that penicillin is of great value in the treatment of this serious complication, but staphylococcal invasion of the lung is rare. The observations on the cases of empyema suggest not only that penicillin by local injection combined with systemic treatment offers the prospect of cure in severe and sulfonamide resistant cases but that it can even bring about a cure without rib resection in cases in which the pleural cavity already contains large quantities of pus.

South African Medical Journal, Cape Town

17:375-388 (Dec. 25) 1943

- Evidence of Vitamin B Deficiency in Orange Free State Natives. C. A. Luckhoff.—p. 375.
Nutritional Basis of Cape Town Poverty Datum Line Reexamined with Reference to National Nutrition Council Standards. E. Batson.—p. 377.
Note on Jigger Flea (*Tunga Penetrans*) Infestation in Man. B. A. Dormer, J. Friedlander and F. J. Wiles.—p. 382.
Repellents in Malaria Control. S. Annecke.—p. 383.
Rapid Mastic Flocculation and Wassermann Tests Compared. A. T. Neser.—p. 386.
Comparative Bactericidal Efficiency of Atabrine, Sulfapyridine, and Sulfanilamide Against Various Pathogenic Organisms. W. Campbell and F. G. Gilchrist.—p. 387.
Experiments on Atabrine Therapy of Undulant Fever from *Brucella Abortus*. W. Campbell and F. G. Gilchrist.—p. 389.
Occurrence of Sickie Cell Trait in Blood of Bantu. R. B. English.—p. 389.

Bactericidal Efficiency of Atabrine, Sulfapyridine and Sulfanilamide.—Campbell and Gilchrist devised tests to compare the bactericidal efficiency of atabrine with sulfapyridine and sulfanilamide against various pathogenic bacteria in broth, serum and blood. They arrive at the following conclusions: 1. The bactericidal efficiency of atabrine is slightly enhanced in the presence of serum, which is in accordance with the findings of Browning and his co-workers with other flavine derivatives. 2. The bactericidal efficiency of atabrine is greater than either sulfapyridine or sulfanilamide with respect to beta-hemolytic streptococcus and pneumococcus. 3. The bactericidal efficiency of atabrine against *Staphylococcus aureus* in human whole blood was found to be less than that of sulfapyridine and sulfanilamide. However, the bactericidal effect of all three drugs was found to be greater in human than in rabbit's blood. 4. The bactericidal efficiency of atabrine against beta-hemolytic streptococci was found to be 25 per cent to 17 per cent greater than sulfanilamide in rabbit's whole blood and in dilutions of 1/5,000 to 1/20,000. Both these drugs were more efficient than sulfapyridine. 5. The bactericidal efficiency of atabrine in rabbit's whole blood against pneumococci is from 8 per cent to 23 per cent greater than sulfapyridine in dilutions of 1/5,000 to 1/20,000, and 12 per cent better at 1/50,000. This is significant in the light of de Hecht's claim that more than half the dosage of atabrine is absorbed and held by the liver and lungs. 6. There is proof that atabrine, like other flavine dyes and also sulfanilamide and sulfapyridine, does not inhibit phagocytosis, and that the final bactericidal effect is the sum of the bactericidal activity of the drug and the phagocytic activity of the leukocytes.

Transactions Royal Soc. Trop. Med. and Hyg., London

37:169-224 (Dec.) 1943

- Influence of Slave Trade in Spread of Tropical Disease. H. H. Scott.—p. 169.
Jaundice of Obscure Origin in El Obeid, Kordofan Province, Sudan. R. W. Stephenson and R. Kirk.—p. 189.
*Causation of Tropical Ulcer. A. D. Charters.—p. 205.
Foot Lesions in Africans. M. J. G. Furnell.—p. 217.
An Unusual Case of Quinine Idiosyncrasy. K. Braun, J. Czertok and W. Kornbluth.—p. 221.

Causation of Tropical Ulcer.—Charters stated that of 570 East Africans admitted to a field ambulance during the six months between November 1942 and May 1943 only 1 had a tropical ulcer. On the other hand, out of 292 Somali soldiers admitted during the same period 143 were affected with sloughing phagedena. Converting these figures to percentages, he found that 49 per cent of the Somali soldiers admitted were suffering from tropical ulcer, as opposed to under 0.2 per cent of the East Africans. The Somalis and East Africans live under identical conditions of climate, and other conditions are similar, with one exception: They differ in their diet. The author analyzed the diets, particularly with regard to the vitamin A content. In Abyssinians in East African units, who refused the East African rations, typical tropical ulcers developed. Tests on 135 patients suggest that vitamin A deficiency is a major factor in the causation of tropical ulcer. Prophylactic measures based on this theory consist in the administration of a carotene rich substance, such as Abyssinian sweet pepper, green chillies or lettuce.

37:225-286 (Feb.) 1944

- *Bacteriophage Therapy in Bacillary Dysentery. J. S. K. Boyd and B. Portnoy.—p. 243.
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Penlamidine in Prevention and Treatment of Trypanosomiasis. L. Van Hoof, C. Henard and E. Peel.—p. 271.
Sickling Phenomenon in Blood of West African Natives. R. W. Evans.—p. 281.

Bacteriophage Therapy in Bacillary Dysentery.—Boyd and Portnoy had an opportunity to investigate the therapeutic value of bacteriophage therapy in bacillary dysentery, when large quantities of bacteriophage were captured during the Axis retreat from El Alamein. It was decided to use dysentery bacteriophage in the treatment of cases of bacillary dysentery occurring among German prisoners of war. Camps in which prisoners of war are incarcerated are divided into sections or cages which are more or less identical. In the prisoner of war camp selected for the trial, two separate but strictly comparable communities were created by a random grouping of cages into two series. Dysentery patients from one series received bacteriophage treatment, those from the other did not. A further cage was set aside for a small experiment in prophylaxis. The German bacteriophage preparation was tested for potency against stock cultures of dysentery bacilli, typhoid-paratyphoid bacilli and a recently isolated strain of *Escherichia coli*. Parallel titrations were made with a French bacteriophage sponsored by d'Herelle and with an Alexandrian bacteriophage. It was found that the German dysentery bacteriophage was of high potency and wide polyvalence. In both these respects it was superior to the French and Alexandrian preparations. The potency of the German dysentery bacteriophage was tested also against strains isolated in the course of the investigation. All strains tested were found to be susceptible to the action of this bacteriophage. From tests on the feces of a number of patients under treatment with this preparation it can be concluded that bacteriophage reaches the bowel and is present in the stools in an active condition and in considerable quantity. No prophylactic action was found to result from a three day administration of bacteriophage. The incidence of dysentery in a community treated with bacteriophage at the first sign of diarrhea was no different from that in a control community. Neither the severity nor the duration of the attack in the bacteriophage treated group was less than in the controls. Dysentery bacilli were recovered from the stools after the bowel had been exposed for as long as four days to the action of bacteriophage. It is concluded that bacteriophage fails to exercise in vivo the potent properties which it exhibits in vitro.

Book Notices

Handbook of Nutrition: A Symposium Prepared Under the Auspices of the Council on Foods and Nutrition of the American Medical Association. Reprinted from the *Journal of the American Medical Association* with Additions. Cloth. Price, \$2.50. Pp. 586. Chicago: American Medical Association, 1943.

This volume represents a valuable and timely addition to the literature of nutrition. A compilation of papers by twenty-eight of the leading American authorities in the clinical, biochemical and physiologic aspects of the field, it is complementary to an earlier volume, "The Vitamins: A Symposium," published in 1939 under the auspices of the Council on Pharmacy and Chemistry of the American Medical Association.

Broader in scope than the earlier symposium, it should be studied with care by clinicians, nutritionists and dietitians—in fact by all who are concerned with the broad and numerous problems of human metabolic economy. Its publication now is a notable service to physicians and to their colleagues in related fields. Appearing in wartime while clinicians everywhere are confronted with often unfamiliar and perplexing nutritional problems, it can be considered a signal contribution to the war effort, for it provides much of the best and latest information on a subject in which the limited knowledge of many physicians has been reflected in often unwarranted demands on local ration boards for extra fats, carbohydrates or proteins and in the indiscriminate prescription of vitamins in the mistaken belief that they will provide an occult source of energy and health not obtainable in a well balanced diet.

Like Pilgrim's Progress, the path of food from its points of biologic origin through the intestine of man to his living tissues is a devious and often hazardous one, beset along the way with many pitfalls which may impair its ultimate metabolic value. The illumination cast by modern research on this path is one of the fascinating chapters in the scientific history of a century in which the kitchen art of food preservation has become the science of food technology.

Among the subjects considered in this volume are the role of proteins, fats, calories, common and trace elements, fat and water soluble vitamins, salt and water in human nutrition. Maynard contributes an authoritative chapter on foods of plant origin and Sherman on foods of animal origin. Kohman's discussion of preservation in processing of the nutritive value of foods provides valuable insight into some of the problems encountered in the processing industry, especially as they apply to the newer techniques of preservation by freezing and dehydration. Wilder and Keys, in a chapter on unusual foods, call needed attention to the economic waste entailed in relegating skim milk, whey, animal organ meats and other products of high human nutritive value to cattle and poultry feeds and to fertilizer. Tuohy's discussion of geriatric nutrition perhaps serves best to illustrate how little scientific data we have on the effect of diet on the course and processes of aging. Stiebeling contributes a useful summary of available data on the adequacy of American diets. Kruse's chapter on the medical evaluation of nutritional status should be read critically in view of his claim, unjustified by present available evidence, to be able to detect "specific biomicroscopic changes in four deficiency diseases: in the conjunctiva in avitaminosis A, in the cornea in ariboflavinosis, in the tongue in aniacinosis, and in the gums in avitaminosis C." The specificity of the lesions emphasized by Kruse has been rightly questioned, and surveys purporting to reveal an extraordinarily high incidence of deficiency disease in certain population groups, based on Kruse's claims, tend to discredit the work of more cautious and critical investigators.

A variety of new laboratory technics as well as carefully accumulated clinical observations are providing much needed information, but it is evident that the evaluation of nutritional status is still far from an exact science.

Holt's recent observations on the bacterial synthesis of thiamine in the human intestine may, if confirmed, necessitate reevaluation of many earlier studies and the postulates derived from them. The same may apply to others of the B group of water soluble vitamins. Not yet can the physician dispense with clinical acumen and a sound knowledge of fundamental nutritional physiology. To the reinforcement of these the *Handbook of Nutrition* should be a substantial aid.

Criminal Careers in Retrospect. By Sheldon and Eleanor Glueck. *Harvard Law School Studies in Criminology.* Cloth. Price, \$3.50. Pp. 380. New York: Commonwealth Fund; London: Oxford University Press, 1943.

Sheldon and Eleanor Glueck are probably the leading experts on the prediction of future behavior in criminals and juvenile delinquents. They have made a scale for predicting behavior which is apparently quite worth while, and they have studied the careers of many offenders who have served time in institutions for adult and juvenile offenders of both sexes. At the end of each five year period since the beginning of their studies they have submitted a report on the value of penologic treatment of one sort or another, and the present volume is the report on the third five year period. The various factors which make for success or failure on probation are summarized, and tables are included to show the various conditions and classes of conditions operating on the various offenders.

In addition, several individual case studies have been followed up to analyze the factors which have made for later failure or success in the community. The best chapters in this volume are those on criminal careers, environmental circumstances, family relations and assumption of economic responsibilities, work and use of leisure, criminal conduct, differences between reformed and unreformed and serious and minor offenders, and reasons for relapse into delinquency.

There is a second part dealing with the response of offenders to penocorrectional treatment, behavior during penocorrectional treatment and successes and failures during extramural and intramural treatment, and there are also two chapters having to do with successes and failures during various forms of extramural treatment. There is a third part dealing with the value of predictions.

The most important conclusion for the physician is the fact that many penologic problems are distinctly medical problems, either problems of psychiatric maladjustment or feeble-mindedness. While environmental factors are important, they can be better dealt with by the layman than can be medical problems, and the authors urge individualization of treatment by careful examination and careful prescription of therapy.

Family Behavior, Attitudes and Possessions. By Milton Blum and Beatrice Candee. *Family Living as the Basis for Dwelling Design, Volume Four. Research Study 5, The John B. Pierce Foundation.* Paper. Price, \$3. Pp. 200, with illustrations. New York: John B. Pierce Foundation, 1944.

This is a searching inquiry into the habits of families. It leaves practically nothing unexplored, even to the amount of time required by husbands for shaving. It supplies the astounding information that "all husbands shave standing in the bathroom." It also informs the reader that the items used for face and hand washing are soap, wash cloth, rough face towel, bath towel, smooth towel and brush and the exact number of times each is used in the families investigated. If any one supposed that the members of the guinea pig families escape the examiner when they retire to bed, let him be undeceived because the occupations of various members of the families after they get into bed are described in great detail, from the average length of time after getting into bed until turning out the light, to illuminating details as to whether those individuals spend their time talking, smoking, praying or just lying. Favorite sleeping positions of women and night clothes worn by wives in summer and winter are tabulated. Women's grooming activities such as combing the hair and applying cosmetics, and the place where they are performed by preference such as the bathroom, bedroom or "others" are set forth in detail. Uses of the bathtub other than for bathing are found to include umbrella storage, washing the feet, washing the hair and washing clothes.

Two sets of families were investigated, one being apartment dwellers and the other small single house dwellers. Both types of houses were portions of community housing projects. Therefore it is perhaps a little surprising to find that the husbands in these modest dwellings boast an average of 5.4 suits among apartment dwellers and 4.5 among house dwellers, the range being from 1 suit to 18 suits, which may or may not be complementary on the kind of people who live in housing projects. The wives do not do badly, having averages of from 15.2 dresses in apartment dwellers to 14.5 in house dwellers, the range being a minimum of 4 and a maximum of 40. Other items include women with as many as 25 skirts, 23 blouses, 21 slips, 24 panties

and 40 pairs of shoes; it does not appear whether one woman represented the maximum for all these items.

This brochure is a high quality printing job on enamel book paper with many large halftone "bleed" illustrations. These are reproductions of photographs illustrating various phases of the survey as, for example, a corner of a bathroom showing the toilet accessories which apparently are typical possessions of the dwellers in these projects. Other pictures show baby bathing facilities, favorable and unfavorable bathroom designs, use of the bathroom for drying laundry and storing clothing, arrangement of clothes closets and similar shots. Considering that these are housing projects intended presumably to be low in cost, the quality of furniture, draperies and accessories is remarkably high.

The purpose of these intimate investigations, which appear sometimes to be carried almost to a ludicrous extent, is to develop information about living habits as a basis for housing design to meet the most common needs of the largest number of persons. Much of it is based on records kept by the housewife on forms left with her, but efforts are made to verify this by interviews and other technics. There is an extensive appendix showing the forms used.

Essentials of Dermatology. By Norman Tobias, M.D., Senior Instructor in Dermatology, St. Louis University. Second edition. Cloth. Price, \$4.75. Pp. 497, with 143 illustrations. Philadelphia, London & Montreal: J. B. Lippincott Company, 1944.

The appearance of a second edition in two years is adequate proof of the cordial reception the medical profession has accorded this book. The paragraphs on vitamin and sulfonamide therapy, the chapter on physical therapy, the pathology of several dermatoses and the newer ointment bases have been rewritten or elaborated on for the sake of clarity. Nineteen new photographs have been included. The organization of the book is good and the subject matter of all the common and even rare dermatologic diseases is presented in a clear and concise manner. Many charts for differential diagnosis will be found helpful to students of dermatology. The latest accepted treatments are described and those now obsolete have been omitted. An added feature is the use of sulfonamide drugs and a table of normal values, both printed on the inside covers of the book. This book should be in the library of the general practitioner, the medical student and the beginner in dermatology.

Fundamentals of Anesthesia: An Outline. By Subcommittee on Anesthesia of Division of Medical Sciences, National Research Council. Second edition. Fabrikoid. Price, \$2.50. Pp. 231, with 81 illustrations. Chicago: American Medical Association Press, 1944.

The Subcommittee on Anesthesia of the National Research Council realized in 1942 that there was an urgent need for a book dealing with the fundamentals of anesthesia. The quickest way to produce the book was to utilize material from the three pamphlets issued by the American Medical Association in 1937, 1938 and 1939 dealing with the Scientific Exhibit sponsored by the Association. A second edition of the manual now has been made available in which is included all of the original material. However, the chapter on local anesthesia has been supplemented and eight additional pages on transsacral block and spinal anesthesia have been added. Nine new illustrations have been introduced. A few minor corrections have been made in the text. Otherwise the review of the first edition (*THE JOURNAL*, Sept. 5, 1942, p. 84) covers the second edition.

The Chemistry of Synthetic Substances. By Dr. Emil Dreher. [Translated by Marion Lee Taylor.] Cloth. Price, \$3. Pp. 103. New York: Philosophical Library, 1943.

This volume, a translation of the German, is acclaimed as a useful textbook on the chemistry of high molecular organic compounds recently developed in science and industry. The contents of the book are predominantly macromolecular organic chemistry covering a survey of synthetic compounds, although not adequately; the principles of polymerization, including various types of products; the processes of polycondensation, and the solubility of high molecular film-forming substances. Apparently the author has not taken into consideration the great number of papers advanced on this particular subject; consequently there is a possibility of a distorted representation. Although recently edited, it appears not to be an up to date volume in such a rapidly advancing field.

The Vitamins: A General Survey for the Practising Pharmacist. Based on a Series of Articles Which Appeared in "The Pharmaceutical Journal" in 1938-39. Published by the Pharmaceutical Society of Great Britain. Second edition. Paper. Price, 2s. 6d. Pp. 64. London: Pharmaceutical Press, 1944.

This edition brings up to date the brief but quite inclusive discussion of the better known vitamins which comprises the book. The British terminology is found to differ from the American only in the use of the term aneurine for thiamine. A rapid survey is made of the units of vitamin measurements, principal sources and chemical characteristics. Although the booklet is prepared for the information of the pharmacist, appropriate acknowledgment of the contribution of vitamins from foods is made by inclusion of short tables showing vitamin content as well as discussion of chief food sources of various vitamins. The estimated vitamin requirements of man are touched on and conflicting opinions quoted. In several instances the British estimates differ from those of the National Research Council. Consideration is given to the physiologic action of the vitamins, both beneficial and possible deleterious. This includes the effects noted in animals as well as man with the distinction clearly made here. Finally enumeration is made of the official vitamin and commercial vitamin preparations with a brief descriptive line on each. This material provides an informative list which could be of use for a survey of available vitamin preparations for teaching purposes or otherwise. This booklet contains much worthwhile information accurately representing the known facts. A little information, however accurate, may be dangerous, and it is hoped that material such as this will not encourage pharmacists in the offhand diagnosis of disease conditions for treatment with vitamin preparations.

The Aliphatic Alcohols: Their Toxicity and Potential Dangers in Relation to Their Chemical Constitution and Their Fate in Metabolism. By W. F. von Oettingen, Principal Industrial Toxicologist, U. S. Public Health Service. From the Division of Industrial Hygiene, National Institute of Health. Prepared by direction of the Surgeon General, Federal Security Agency, U. S. Public Health Service, Public Health Bulletin No. 281. Paper. Price, 35 cents. Pp. 253. Washington, D. C.: Supt. of Doc., Government Printing Office, 1943.

As stated in the introduction, the volume contains data on various aliphatic alcohols of industrial importance and their fate in the organism. The book is divided into four parts. The first section is devoted to the monovalent alcohols, including acetone and phenyl substitutions, and the relationship existing between chemical structure and physiologic action, their properties being irritant and narcotic, varying with their configuration. The second reviews the bivalent or dihydric alcohols, which are less volatile and less extensively used, although some are employed in the manufacture of explosives, as solvents, particularly the ethers and esters in cosmetics and pharmaceuticals. A knowledge of their toxicity is important in avoiding industrial hazard. The third section considers the main trihydric alcohol glycerol or glycerin, while the fourth applies to the alcohols of more than three hydroxylic groups which, because of their low toxicity, are of no toxicologic importance. An extensive bibliography is included. The book is a noteworthy compilation and should prove an aid in public health, particularly to those allied in chemical and pharmacologic investigations.

Hope Deferred. By Jeanette Seletz. Cloth. Price, \$2.75. Pp. 336. New York: Macmillan Company, 1943.

Any one who studied medicine in the city of Chicago will have entertainment reading this novel. It tells about a boy from the country who came to Chicago to study medicine and of the other boys who came from the homes of the wealthy and were assembled, as is usual, into what constitutes an average medical class. The reader goes with them through the final examinations, the internships and residencies, and sees them overcome the trials of the medical life or succumb to their inability to meet the standards. This is a good "doctor" novel. It has romance, which is not however the prime feature of the book. The hero of this book is medicine. Those people who like their stories all wrapped up and brought to a satisfactory conclusion will be a little dissatisfied that the book ends with the coming of war and the questions that war raises. Although Jone Brent is the chief medical character in the book, the reviewer found most of his sympathy and admiration going to Buckley Brown, who is that *rara avis* the boy born to a medical career.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

HEMOPTYSIS WITH FUNGI IN SPUTUM

To the Editor:—What is the prognosis and treatment of a baker aged 55, apparently in good health, who raised a mouthful of blood from the lungs, the sputum for twenty-four hours later being blood tinged. The heart, lungs and kidneys were normal. X-ray examination of the lungs showed only a slight general haziness. Sputum examination showed, on culture, a growth of a pure yeast fungus. He smokes a pack of cigarettes daily and drinks from 12 to 15 cups of coffee.

B. F. Stevens, M.D., El Paso, Texas.

ANSWER.—The prognosis and treatment depend on the diagnosis. The fact that "sputum examination showed, on culture, a growth of a pure yeast fungus" does not prove that the symptoms are due to infection by yeasts or other fungi. The incidence of such infection is so small as to be diagnosed only after exclusion of the more common causes of hemoptysis. Carcinoma of the bronchus is more common at the age of 55, and pulmonary tuberculosis must also be considered. The patient should be reexamined, especially by bronchoscopy and by x-ray, and the sputum should be repeatedly examined for tubercle bacilli and fungi. The mouth should be carefully cleaned before the sputum is collected.

If carcinoma and tuberculosis can be excluded and if yeasts are again found in the sputum, the diagnosis of fungous infection of the lungs is probably correct. The type of fungus should be identified, if possible. Pulmonary disease from various fungi have been reported a number of times. Bakst, Hazard and Foley, in a paper on pulmonary moniliasis (*THE JOURNAL*, April 14, 1934, p. 1208) report 3 cases, 2 primary and 1 secondary to tuberculosis. The symptoms in the 2 primary cases were cleared by the use of 45 grains (3 Gm.) daily of potassium iodide and by injections of a vaccine made from the monilias recovered from the patients' sputum. The authors emphasize the importance of considering the diagnosis of pulmonary moniliasis in cases of unproved and atypical tuberculosis. They state that monilias are rarely found in the sputum of normal persons.

The aspergillus, another fungus, not only can cause allergic asthma and rhinitis but in rare instances can also invade the bronchi to produce aspergillosis. This condition leads to symptoms suggestive of pulmonary tuberculosis; bronchiectasis is sometimes associated, and grain handlers seem especially vulnerable.

EFFECT OF THYROID ON SIZE OF FETUS

To the Editor:—A patient who is pregnant has consulted an apparently able obstetrician, who has suggested to her that the taking of thyroid, doses not stated, would result in a smaller baby than would otherwise occur. This is the patient's second pregnancy and she had rather a difficult time with her first delivery. Is there any basis for this assertion?

F. L. Carson, M.D., Shawnee, Okla.

ANSWER.—Thyroxine is indicated in pregnancy only in the presence of definite hypothyroidism. It is generally known that the basal metabolic rate is elevated as much as 30 per cent above normal in the last three months of normal pregnancy. If additional effective doses of thyroid hormone are given, hyperthyroidism may be easily elicited. In lower dosage thyroxine would exert no action and would provide no reduction in weight of the newborn. In order to accomplish that, when indicated, controlled diet and restriction of salt and water in the last month of pregnancy are far more effective and safer. Except in extreme cases, there is little or no correlation between size of the fetus and length of labor.

HEXACHLORETHANE

To the Editor:—For some time I have been concerned about the possible toxic effects of hexachlorethane (C_2Cl_6) either from inhalation of the vapor or from inhalation or ingestion of the solid material. Do you know of any clinical experience or controlled animal experiments in which definite pathologic changes have been correlated with known exposure to hexachlorethane?

Captain, M. C., A. U. S.

ANSWER.—Hexachlorethane, C_2Cl_6 , forms rhombic crystals of the specific gravity 2.09 which melt in a sealed tube at 185.9–187.4 C. and boil at 185.5 C. at 776.7 mm. of mercury. It is insoluble in water but dissolves readily in alcohol and ether.

Information with regard to the toxic effects of hexachlorethane on men is not available. When tested on isolated organs such as the frog heart (Kicssling: *Biochem. Ztschr.* 114:292, 1921; Fülmer, *ibid.* 120:143, 1921) its depressant action for this organ is more pronounced than observed with the lower homologues. Data regarding its systemic toxicity after oral and parenteral administration are scanty and not sufficient to permit the appraisal of its potential dangers as an industrial poison (Binz: *Virchows Arch. f. path. Anat.* 89:389 1882. Steindorff: *Arch. Ophth.* 109:252, 1922. Maloff: *Arch. f. exper. Path. u. Pharmacol.* 134:168, 1928. Barsoun, G. S., and Saad, K.: *Quart. J. Pharm. & Pharmacol.* 7:205, 1913). According to a statement in *THE JOURNAL* (Feb. 8, 1936, p. 484) the use of this material in veterinary medicine has disclosed evidence of severe gastrointestinal irritation and renal disturbances.

INTRAVENOUS CALCIUM ADMINISTRATION AND EDEMA

To the Editor:—I am bedridden with arthritis deformans and have been taking 1 Gm. of calcium gluconate daily for about six weeks (intravenously) because of calcium deficiency due to allergy to milk. For the past two or three weeks I have had edema of all dependent parts, though not necessarily all parts affected dependent, since the scalp tends to swell too as well as the elbows, back and feet. There is no cough, and the urinary output is about normal. Is it possible that the swelling is due to a supersaturation of blood calcium?

M.D., Florida.

ANSWER.—The intravenous injection of calcium may be detrimental to the secretory function of the kidneys if there is already some renal deficiency present. No record of edema produced merely by supersaturation of the blood with calcium has been found. If the swelling occurred only since the beginning of this treatment, careful renal function studies should be made. In the meantime it would certainly be advisable to discontinue the treatment. There is little theoretical basis and no scientifically acceptable evidence that the intravenous injection of calcium gluconate for any chronic condition is of more value than the oral ingestion of calcium taken in conjunction with a moderate amount of vitamin D supplement.

RECURRING EFFUSION IN KNEE JOINT

To the Editor:—A patient aged 34 has had a bursitis of the right knee, not prepatellar but a panbursitis with knee cap floating, for four months. I have aspirated the bursa four times and applied compression bandage (taped) in the extension, but it recurs. Should it be injected with a sclerosing solution? If not, what should be the treatment to bring about a cure?

E. W. Ellis, M.D., Elgin, Minn.

ANSWER.—A panbursitis such as described would suggest a generalized synovitis of the knee joint itself. The knee cap would not float unless there was considerable effusion within the joint. Injection of any bursa that connects directly with the knee joint by means of a sclerosing solution may produce serious additional damage to the joint itself.

It is not wise to propose treatment without knowing more about what may have produced this condition. If it is secondary to infection, treatment should be quite conservative. If it is a localized joint involvement, not subsiding, and the roentgenograms are normal as far as the bones are concerned, excision of the lining of the involved bursae and synovectomy of the knee may be considered. The problem in the management of a case of this type is much the same as the treatment of that of any nonspecific arthritis with effusion.

EFFECT OF BELLADONNA ON ACCOMMODATION

To the Editor:—A man aged 30 was given belladonna for treatment of ulcers of the stomach. This treatment, according to the case history, was started in September 1942 and continued until December 1942. For a period of three years previously an optometrist has reported no radical change in refraction. After having taken the belladonna for the three months period a definite suspension of accommodation (requiring an addition plus 1.50 S.) was observed in the left eye only. This suspension has persisted to date. There was no similar suspension of accommodation in the right eye. Why did this suspension of accommodation occur only in the left eye, and why does it persist when the belladonna has been discontinued since December 1942? Abraham A. Levy, M.D., New York.

ANSWER.—The use of belladonna by mouth has been known to affect the accommodation, but in all the cases so far as is known this effect on accommodation has been a temporary one and has stopped when the administration of the drug was stopped. Records of cases in which accommodation was affected in only one eye have not been found. It seems probable that some other condition was present as the cause of the suspension of accommodation if this has been permanent and has affected only one eye.

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PUBLIC HEALTH VENEREAL DISEASE CONTROL

THE PRIVATE PHYSICIAN'S INCREASING RESPONSIBILITY

A REPORT OF THE SUCCESS OF PHILADELPHIA'S COOPERATIVE PLAN

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AND

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PHILADELPHIA

Since the report of the joint County Medical Society Health Service survey, conducted three years ago in Philadelphia,¹ an active effort has been made to elicit the interest of the private physician in the treatment of venereal disease. The apparent success of the plan is the subject for this discussion.

Any plan for the control of the venereal diseases which does not take into full account the medical resources of the body of the profession cannot be successful, except in part. This was recognized in the "preamble" of the purposes of the venereal disease control program as they might affect the private physician,² set forth in the 1936 Washington conference and in numerous other statements made at that time and since both local and nationwide in their scope, California,³ Kansas,⁴ Michigan,⁵ Ohio,⁶ Alabama,⁷ North Carolina,⁸ Delaware,⁹ Illinois,¹⁰ Connecticut¹¹ and others.¹² The

need of decentralization¹³ has long been recognized, both because of the local character of the venereal disease problem,¹⁴ the need for patient individualization and the importance of treatment in rural areas¹⁵ where large scale clinic practice is not possible.

Even in densely populated areas the concentration of the public health management of gonorrhea and syphilis into a single center or centrally placed group of clinics, while efficient and economical for those who attend, will reach only a small portion of those infected. Intensive methods of treatment requiring hospitalization thus far available for syphilis are to be used only in certain stages of the disease (primarily early syphilis), whereas the bulk of syphilis in the community is symptomatic of latent late syphilis. Except for the sulfonamide resistant, treatment of patients with gonorrhea is better accomplished in the physician's office than in the average clinic.

As the magnitude of the case finding problem for gonorrhea and syphilis is more clearly defined, and as the vast amount of hidden venereal disease, unknown to any treatment source, becomes apparent, the necessity of using every community resource becomes obvious (compare Vonderlehr and Usilton,¹⁶ whose material concerning attack rates for syphilis in the general population was derived in part from the Philadelphia survey). The war effort, with its many physician shortages merely serves to emphasize this statement (compare Lahey¹⁷) and to make it apparent that "the physician who manages venereal disease privately or in the clinics assumes a place equal in importance to that of the health officer."¹⁸

The 1940-41 survey in Philadelphia¹ showed a discrepancy between the treatment prevalence of syphilis (for the age group 21 to 35 years) and the actual prevalence of the disease as shown by selective service blood tests of 400 per cent. The treatment prevalence rates were 2.1 and 42.1 per thousand for white and Negro males respectively, while the actual prevalence as shown by blood serologic tests were 10.3 and 193.9 per thousand. In commenting on this situation, Ingraham¹⁹ remarks "We are just beginning to learn that hardly one fourth of the people with syphilis in the community

From the Philadelphia Department of Public Health (Rufus S. Reeves, M.D., director), and the Philadelphia County Medical Society.

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16. Vonderlehr, R. A., and Usilton, L. J.: The Extent of the Syphilis Problem at the Beginning of World War II, *Am. J. Syph., Gonorr. & Ven. Dis.* 27: 686 (Nov.) 1943.

17. Lahey, F. H.: The Private Physician Today in the Control of the Venereal Diseases, *Ven. Dis. Inform.* 23: 85 (March) 1942.

18. Vonderlehr, R. A.: Individual Support in the United War-time Venereal Disease Control Program, *Am. J. Syph., Gonorr. & Ven. Dis.* 26: 651 (Nov.) 1942.

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are receiving essential medical care and that a much smaller, though less clearly defined, percentage of individuals with gonorrhea ever apply to a physician or clinic for treatment."

As these previously undiscovered cases, numbering in the tens of thousands for a densely populated area like Philadelphia, are brought under medical care by wartime stimulated routine blood serologic tests and through epidemiology based on military source of infection reports, it is evident that no overcrowded system of clinics could be expected to bear the strain without enormous and almost unheard-of expansion. Participation by the majority of physicians in the community in a program which would include the treatment by each of even 2 or 3 additional venereal disease patients annually would care for many thousands of individuals with no great strain on any medical resource.

The most outstanding programs of private physician and health department cooperation with reported results are those of Ingham County, Mich.,²⁰ and of New York City.²¹ We have drawn freely from the experience of both these successful experiments and from Casselman's²² studies, with which one of us has had personal contact. Similar methods of professional and lay education, consultation and laboratory service and distribution of free drugs have been adopted here as in the programs just referred to.

In the matter of referring patients to private physicians our procedure has been a little more highly developed, a result, in all probability, of circumstances brought about by different local conditions and of changing economic circumstances of many of the infected patients, incident to war conditions. We found an appeal to the physicians of the community through *Philadelphia Medicine*, the weekly roster of the County Medical Society, to accept in their private practices additional patients on a low fee basis, both fruitless and, as shown by subsequent study of the incomes of the groups to be served and experience with referring them for medical care, unnecessary. Only 40 physicians responded in a medical population of about 3,500, totally insufficient to meet the community problem from the standpoint both of the volume of patients to be cared for in private practice and of the number of localities within the city to be serviced.

It was evident that the truly indigent patient could be cared for more economically and with much less trouble to all concerned in the public health clinics and that, moreover, there were ample numbers of full pay patients more than to satisfy available private resources. The problem became one, therefore, of interesting large numbers of the medical profession in venereal disease control and of classifying them in a way in which they could be of maximum use to the various professional agencies which would be likely to refer patients for private medical care.

Experience within the health department and the clinics had shown that it is completely unsatisfactory in a densely populated area like Philadelphia where hundreds of physicians are concerned, many of them specialists, merely to tell the prospective patient to go to his family physician. With the increase in population

shifts because of war, patients unfamiliar with the community need guidance even in making that initial contact with the medical profession. Studies within Philadelphia showed that 36 per cent of the practicing physicians do not treat venereal disease at all and only 53 per cent of the remainder treat all types of gonorrhea and syphilis, 47 per cent certain aspects only.²³ In referring patients to private physicians, moreover, we were concerned not only with the patient who applies at the public health clinics but also with patients who apply to some 60 other treatment centers within the community and to about 250 different social agencies. When the physician's list was finally prepared in pamphlet form for distribution only to the professional agencies, 3,000 copies were utilized in the course of a year. To show something of the magnitude of the referral problem and the number of individuals concerned: A single agency, the Division of Medical Inspection of the Public Schools, with its nursing, social work and counseling staff, had need of 250 physicians' lists to supply adequately all individuals who might be concerned with venereal disease problems among the pupils in the various places throughout the city.

In short, a direct appeal was made by letter jointly sponsored by the county medical society and the Department of Public Health, based on the vast community problem previously defined and the importance of an adequate control of the venereal diseases in the civilian population, to the war effort. Approximately 2,500 physicians responded, and three fourths of those who treated gonorrhea or syphilis (1,164 physicians in all) agreed to have their names published "for use by the health department and other professional agencies for purposes of facilitating proper community patient referral mechanism." These physicians were classified as to the type of diseases treated and in accordance with the location of their office into one of ten districts within the city. All sections of the city were adequately serviced. The physicians' names and instructions were published in the Aug. 1 and Aug. 8, 1942 issue of *Philadelphia Medicine* and reprinted for distribution.

RESULTS OF SURVEY

The remainder of the paper interprets the results obtained in a survey conducted conjointly by the Philadelphia Department of Public Health and the Committee on Venereal and Cutaneous Diseases of the Philadelphia County Medical Society, during the fall of 1943. The purpose of the survey was to learn the effectiveness of the effort to direct in an orderly fashion the venereal disease patients newly discovered through the war impetus to private medical practice. Improved economic circumstances of many of the patients seeking medical care for gonorrhea and syphilis in Philadelphia within the last two years has made it evident that more and more individuals can afford the full cost of treatment. Although exact information on this point is difficult to obtain, there is every reason to believe that the findings of the 1940-41 survey,¹ which showed "58 per cent of all patients with gonorrhea and syphilis receiving treatment in Philadelphia had incomes of less than \$1,000" a year, are invalid at the present time.

In 1940, 78.6 per cent of the private physicians in Philadelphia had no cases of gonorrhea or syphilis under

20. Aselmeyer, A. J., and Usilton, L. J.: The Venereal Disease Problem: Its Prevention and Control in Ingham Co., Michigan, *J. Michigan M. Soc.* 37:597 (July) 1938.

21. Clarke, C. W., and Rosenthal, T.: The Private Physician's Role in the New York City Syphilis Control Activities, *J. A. M. A.* 111:2287 (Dec. 17) 1938.

22. Casselman, A. J.: Service Provided Physicians by the Health Department, *Ven. Dis. Inform.* 19:159 (June) 1938.

23. Greenbaum, S. S., and Ingraham, N. R., Jr.: Report on Recent Questionnaire Sent to Philadelphia Physicians Concerning Treatment of Venereal Disease Patients in Private Medical Practice, *Philadelphia Med.* 37:1533 (Aug. 1) 1942.

treatment during the period of the survey and, moreover, about 60 per cent of the private venereal disease patients were under the care of 5 per cent of the doctors. These percentages may be compared to those of the Ingraham County, Mich., study previously mentioned,²⁰ in which 65 per cent of the physicians had at least 1 venereal disease patient during the period of the survey and only 27 per cent of the general practitioners had no cases. One of the most important recommendations of the joint committee of the Philadelphia County Medical Society and the local, state and federal health services was "the development of the potentially great but at present too little used resources in private medical practice."²⁴ The 1940-41 survey had shown that the standard of medical practice and case holding power afforded by the private physicians was at least equal to and in many respects superior to that afforded by the average clinic.

In 1943, whereas 9 per cent of the practicing physicians of the community cared for 69 per cent of the 10,736 new patients with gonorrhea and syphilis treated in private practice, the remaining 31 per cent were distributed among approximately one half of the practicing physicians. In the three year period (1940-43) the number of physicians participating actively in the Venereal Disease Control Program has almost doubled.

The active effort to bring about a fuller utilization of private medical practice in the treatment of venereal disease patients consisted primarily in (1) an open appeal to all the physicians in the community to take a more active interest in the management of venereal disease patients, (2) preparation of the physicians' list just described, (3) a persistent policy on the part of the health department to place under private medical care whenever possible the large numbers of patients disclosed by the enormous amount of current routine serologic testing in industry, by selective service examinations and by the investigation of sources of infection named through the military and other epidemiologic reports and (4) active efforts to bring the most recent authoritative information concerning local venereal disease control problems both to the medical profession and to the lay public. The U. S. P. H. S. publication *Venereal Disease Information* was sent to all cooperating physicians whose names were published in the list for distribution to the referral agencies. This group was also freely circularized with pertinent facts concerning the Philadelphia problem. The preparation of this list of physicians made possible for the first time a well coordinated plan of cooperation between the private practitioner, the health department and the clinics, which was never possible with the older method of merely telling the patient to go to his family physician if for any reason he was considered ineligible for clinic care. The general response of the practicing physicians has made the referral of patients entirely practical.

The preparation of this bulletin of available physicians in 1942 showed that, in contradistinction to the 1940 survey, which indicated that only 21 per cent of the private physicians were treating gonorrhea or syphilis in private practice, 1,579, or about one half of the practicing physicians, were willing to treat these diseases, and 74 per cent of these were glad to have their names published for referral purposes. The 1943 survey shows that this effort to direct patients properly to private medical care has succeeded in a very considerable degree

and really far beyond the expectation of those who were responsible for initiating the plan.

The preparation of this large list of cooperating physicians has been of inestimable value to the Department of Public Health and the county society, since it has clearly defined the groups of individuals concerned with the treatment of venereal disease not only in the clinics but also in private practice and has made it possible to develop a degree of cooperation with this smaller vitally interested group which would never have been possible in dealing with the profession as a whole, fully half of which has no direct interest in the public health venereal disease problem.

The 1943 survey concerned only those physicians who were known to accept venereal disease patients in private practice. Of the original 1,579 physicians in this category, 1,374 remained in active practice in Philadelphia, the majority of those not at present available being in military service. Of the 986 physicians who had their names published in the bulletin as treating patients with gonorrhea or syphilis, 745 (76 per cent) replied. Of the 388 physicians who are known to treat venereal disease but who did not desire to have their names published, 257 (66 per cent) replied. The smaller percentage of returns from the latter group of

TABLE 1.—Physicians' Opinions as to Amount of Venereal Disease Seen in Private Practice in 1943 as Compared with Two Previous Years

Amount of Venereal Disease Seen in Private Practice	Physicians Who Had Their Names Published		Physicians Who Did Not Have Their Names Published	
	Number	Per Cent	Number	Per Cent
1. More venereal disease.....	160	21.5	6	2
2. Less venereal disease.....	505	68	109	63
3. Same.....	4	0.5	...	...
4. No opinion.....	76	10	91	33
Total.....	745	100.0	257	100

physicians possibly indicates less interest in this survey and might be expected from the fact that their names were not published. Notwithstanding the great increase in the demands on the time of all practicing physicians as a result of the war, the percentage returns with this questionnaire were higher in both groups than with the 1942 survey, in which there were 63.4 per cent returns. This may mean a general increase in interest in the venereal disease problem on the part of the medical profession as a whole.

There is some indication that the publication of the physician's name has resulted in an increased referral of venereal disease patients. The first question asked the physician whether he felt he had seen more venereal disease in his private practice in the last year (since the publication of the bulletin) than in the preceding years. The replies are summarized in table 1. This table shows that the physicians who had their names published were approximately ten times more likely to note an appreciable increase of venereal disease patients in their private practices than those who did not have their names published. It indicates, we believe, moreover that this bulletin was utilized and that it has proved to be an effective method of properly directing patients to private medical care.

It will be noted that approximately two thirds of the physicians in each group have seen an apparent decrease in venereal disease patients in their private practices. Superficial consideration of this situation might seem to indicate that, assuming an equal or increased amount of

24. Gueguierre, J. P.; Weaver, R. H.; Ingraham, N. R., Jr., and Bruyere, P. T.: Recommendations for Improvement of Venereal Disease Control in Philadelphia, Pennsylvania's Health 3: 41 (April) 1942.

venereal disease under treatment in the community, which is actually the fact, patients are being drawn from private practice in favor of hospital or public health clinics. Careful analysis shows, however, that this impression results from a rearrangement in the distribution of patients rather than from a decrease in the total number of patients under private medical care. In 1940, 698 private physicians had under their care an average of 1,646 cases of syphilis and 593 cases of gonorrhea, totaling 2,239, or 3.2 cases per physician. In 1943, 1,002 physicians had under their care an average of 3,063 cases of syphilis and 773 of gonorrhea, totaling 3,836, or 3.8 cases per physician (compare tables 2 and 3). This indicates that from the standpoint of the community as a whole the published physicians' list has resulted in a more complete utilization of the private medical resources of the community, in that a larger number of physicians by 44 per cent now are treating venereal disease patients than in 1940. This increase is further emphasized by the fact that the war has left

TABLE 2.—Treatment Prevalence of Syphilis in Philadelphia, Showing Increase in Total Number of Patients Receiving Medical Care at Any One Time Since 1940 and Relatively Greater Increase in Private as Opposed to Clinic Practice

Patients Receiving	1940-1941		1943		Percentage Increase Over 1940
	Number	Per Cent	Number	Per Cent	
1. Private medical care..	1,646	18	3,063	26	86
2. Medical care in clinics	7,500	82	8,549	74	14
Total.....	9,146	100	11,612	100	26

TABLE 3.—Treatment Prevalence of Gonorrhea in Philadelphia, Showing Relative Increase in Patients Receiving Private Medical Care Since 1940

Patients Receiving	1940-1941		1943		Percentage Increase or Decrease Over 1940
	Number	Per Cent	Number	Per Cent	
1. Private medical care..	593	39	773	65	+30
2. Medical care in clinics	928	61	420	35	-54
Total.....	1,521	100	1,193	100	-22

approximately 20 per cent less practicing physicians in the community than was the case three years ago. It is suggested, moreover, that the increase in venereal disease patients in private practice of some of the physicians has been very considerable.

The trend of venereal disease patients toward private practice is further emphasized by a study of tables 2 and 3, showing the comparative treatment prevalence of syphilis and gonorrhea in the clinics and private practice in 1940 and 1943. For syphilis, while the total known treatment prevalence for Philadelphia increased about one fourth, the percentage of patients receiving private medical care for this disease has increased from 18 to 26, almost twice as many syphilitic patients being under private medical care now as in 1940.

The increase in total number of syphilitic patients receiving medical care during 1943 does not necessarily indicate an increase in the attack rate of this disease in the community but rather a depletion of the enormous reservoir of previously undiagnosed syphilis which has been brought about by the discovery of new cases through the more general application of routine blood serologic tests. At the present time about 16 per cent of those so discovered have early syphilis (i. e. syphilis

of less than four years' duration), the remainder either symptomatic or latent late syphilis.

Other data collected in this survey but not tabulated shows that, of the 12,438 patients with syphilis treated for the first time in 1943, 5,649 (45.4 per cent) received treatment from private physicians.

These figures may be compared with the report of Parran²⁵ (1938) for the country as a whole indicating that "one half of all practicing physicians are constantly treating 1 or more cases of syphilis, accounting for 59 per cent of the total cases receiving therapy"; and to New York City,²⁶ where in 1941 32.2 per cent of all reported venereal disease (40,311 cases) was by private physicians (40 per cent of the syphilis and 20 per cent of the gonorrhea). In rural areas a greater percentage is normally receiving private medical care than in cities. Thus, in a report from Oakland County, Mich.,²⁷ in 1937, 57 per cent of the syphilis was being treated by private practitioners.

Similar trends to those of syphilis may be recognized for gonorrhea in Philadelphia. Table 3, for example, shows a 30 per cent increase in the total number of gonorrhea patients under private medical care at any one time in 1943 as compared with 1941. The decrease in total treatment prevalence of gonorrhea in the community does not necessarily indicate a decrease in the amount of gonorrhea in Philadelphia. Instead it may result from the fact that, because of induction of physicians into military service, it was necessary to shut down almost completely two of the largest clinics in Philadelphia, thus greatly decreasing the total clinic load. This fact merely serves to emphasize the statements previously made as to the urgent necessity of utilizing to the best advantage all the private medical resources of the community during wartime.

SUMMARY

1. There is a definite increase in venereal disease patients receiving private medical care in Philadelphia. The private practice treatment prevalence for syphilis has increased 86 per cent since 1940 and for gonorrhea 30 per cent in the same period. This is the result of increased case finding incident to the war and of increase in the economic status of many of the venereal disease patients seeking medical care. It is probable that this is a national trend, not peculiar to any one locality.

2. The publication of the "Bulletin of Physicians in Philadelphia who will Accept for Examination and Treatment in Private Practice Patients with Gonorrhea or Syphilis" has resulted not only in an orderly and controlled redistribution of patients who are public health problems but also in an increased participation in the program by the private physician. This is shown by a 44 per cent increase in the number of physicians known to be caring for gonorrhea and syphilis patients in private practice as well as an increase in the average number of patients under the care of a single physician at any one time. There is a need for the development, in all areas where this trend of venereal disease patients to seek private medical care is apparent, of a mechanism for conducting this interchange in an orderly manner. Otherwise many patients, some of whom will be public health problems, will be lost in the transfer, and the general public health of the community will suffer.

25. Parran, T.: Syphilis and the Medical Practitioner, Rocky Mountain M. J. 35: 595 (Aug.) 1938.

26. Rosenthal, T., and Kerchner, G.: Venereal Disease Case Reporting—New York City, 1941, Ven. Dis. Inform. 23: 330 (Sept.) 1942.

27. Roehm, H. R.; Wagley, P. V.; Monroe, J. D., and Hammond, E. E.: A Survey of Syphilis in Oakland County in 1937, J. Michigan M. Soc. 37: 618 (July) 1938.

PRODUCTION OF POTENT INACTIVATED
VACCINES WITH ULTRAVIOLET
IRRADIATIONII. AN ABBREVIATED PRELIMINARY REPORT ON STERILIZATION OF BACTERIA AND IMMUNIZATION WITH
RABIES AND ST. LOUIS ENCEPHALITIS VACCINES

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In another publication we¹ described a new method for completely killing or inactivating turbid suspensions of bacteria and viruses in a fraction of a second by exposing continuously flowing thin films with a depth of less than 1 mm. to a newly developed lamp which is a powerful source of both total and extreme (below 2,000 angstroms) ultraviolet. It was emphasized that bacteria and viruses could be rapidly inactivated by this technic with a minimum loss of antigenicity, while the usual methods of inactivation (heat and various chemicals) unduly destroy the antigenic properties. Furthermore, the conditions of irradiation were standardized with respect to intensity of irradiation, distance from energy source, film thickness and time of exposure, so that experiments could be repeated with consistent results. This paper is a preliminary condensed report presenting results using the new technic of ultraviolet irradiation on (1) inactivation of various bacteria and viruses and (2) immunization with avirulent rabies and St. Louis encephalitis vaccines. The complete paper will appear elsewhere.

The lethal effect of ultraviolet irradiation on bacteria and viruses has been demonstrated repeatedly. Comparatively few studies have been made of the antigenicity of ultraviolet irradiated bacteria and viruses.²

Since 1937 there have been reports by Hodes, Lavin and Webster,³ by Webster and Casals,⁴ by Salk and others⁵ and by Morgan and Lavin⁶ that good vaccines have been prepared by ordinary ultraviolet irradiation against rabies, influenza and equine encephalomyelitis.

A cardinal principle in successful vaccine production is the proper exposure of the infectious agent to the irradiation. Inadequate irradiation will not completely sterilize or inactivate; overirradiation will destroy the

immunogenic properties of the vaccine. The technic employed in the past by other workers was such that it was impossible to avoid overirradiation of a large part of the suspension while inactivating the whole. Furthermore, there was no possibility for constancy of results, either in time or in product. Such variation, inconstancy and unreliability kept the method from being practical for the production of uniformly safe and potent vaccines.

INACTIVATION OF BACTERIA

Approximately 150 inactivation experiments have been completed. The various species of bacteria studied were eighteen to twenty-four hour Kolle flask agar or broth pure cultures grown at 37 C. and resuspended in distilled water. Suspensions containing approximately 1 billion organisms per cubic centimeter of the following bacteria were repeatedly sterilized by ultraviolet irradiation with the method described in 0.17 to 0.33 second exposure: (1) *Escherichia coli*, (2) *Eberthella typhosa* (strain 58), (3) *Salmonella enteritidis*,⁷ (4) *Staphylococcus aureus*, (5) *Streptococcus viridans* and (6) *Diplococcus pneumoniae* (type 1). The viability of each was tested both by plating in triplicate on nutrient or blood agar and by inoculation of several kinds of suitable liquid culture mediums and incubating at 37 C. for seven days. Further tests for inactivation were carried out by animal inoculation in the case of the pathogenic species.

Two commercial lamps (Westinghouse sterilamp and Hanovia cold quartz) tested under identical conditions using a suspension of *Escherichia coli* containing approximately 1 billion organisms per cubic centimeter as the test organism, killed 18 to 20 per cent of the bacteria, while the new ultraviolet lamp killed 100 per cent. A third commercial lamp (Hanovia mercury uviarc s500), which killed 98 per cent of the bacteria, generated a tremendous amount of heat, so that much of the bactericidal effect was due to heat inactivation. This was proved by blowing a stream of cooling air over the lamp, and its killing effectiveness promptly decreased.

INACTIVATION AND ANTIGENICITY OF VIRUSES

Rabies Virus.—The S-1 strain of fixed virus of the Illinois Department of Public Health was used in all rabies experiments. Both rabbit and mouse brains infected with rabies virus were studied. The average infective titer of pooled rabbit brains was 10^{-6} , while the mouse brains usually titered 10^{-7} . In repeated experiments we were able to inactivate completely 4 per cent uncentrifuged mouse and rabbit brain suspensions infected with rabies virus by single exposures for 0.17 to 0.33 second. Standard tests for inactivation, in accordance with the requirements of the National Institute of Health, were used. Additional intracerebral inoculations in mice were done. All animals were observed daily for thirty days. In several instances further tests for inactivation were performed by killing 3 or 4 random mice on the sixth day after inoculation and passing a 20 per cent pooled suspension of their brains to 6 additional mice by intracerebral inoculation. The Habel mouse test,⁸ recommended by the National Institute of Health, was employed for testing the immunizing potency of the various rabies vaccines

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2. Norton, J. F.: The Action of Ultraviolet Light on Bacteria and Their Products, in Jordan, E. D., and Falk, I. S.: Newer Knowledge of Bacteriology and Immunology, Chicago, University of Chicago Press, 1929, p. 371.

3. Hodes, H. L.; Lavin, G. I., and Webster, L. T.: Antirabic Immunization with Culture Virus Rendered Avirulent by Ultraviolet Light, Science 86: 447-448 (Nov. 12) 1937.

4. Webster, L. T., and Casals, J.: An Improved Nonvirulent Rabies Vaccine, Am. J. Pub. Health 32: 268-270 (March) 1942.

5. Salk, J. E.; Lavin, G. I., and Francis, T. Jr.: The Antigenic Potency of Epidemic Influenza Virus Following Inactivation by Ultraviolet Irradiation, J. Exper. Med. 72: 729-745 (Dec.) 1940.

6. Morgan, I. M., and Lavin, G. I.: Immunizing Capacity of Virus of Eastern Equine Encephalomyelitis Inactivated by Ultraviolet Light, Proc. Soc. Exper. Biol. & Med. 47: 497-499 (June) 1941.

7. Identification checked by Dr. P. R. Edwards of the Salmonella Center in Lexington, Ky.

8. Habel, K.: Evaluation of a Mouse Test for the Standardization of the Immunizing Power of Anti-Rabies Vaccines, Pub. Health Rep. 55: 1473-1487 (Aug. 16) 1940.

studied. Several lots of irradiated vaccines were compared with phenolized control vaccines and Illinois Department of Public Health phenolized vaccines of approximately the same age and prepared with the same strain of virus according to the Semple method. A summary of the results obtained in several comparative immunization studies is outlined in table 1.

It is well known that phenolized rabies vaccines rapidly deteriorate on storage at icebox temperatures.⁹ The immunizing titer of three lots of irradiated vaccine stored at 5 C. and tested at various intervals by the Habel mouse test is shown in table 2. These vaccines contained 1:10,000 merthiolate as a preservative.

St. Louis Encephalitis Virus.—The Hubbard strain was used in the inactivation and immunization studies for the St. Louis encephalitis virus. The average infective titer of this strain in mice was 10⁻⁷, but occasionally it reached 10⁻⁸. In repeated tests 4 per cent lightly centrifuged mouse brain suspensions of St. Louis encephalitis virus were inactivated by exposures of 0.33 to 0.66 second. Tests for inactivation consisted of inoculating the undiluted irradiated material intracerebrally into each of 10 Swiss mice. Five mice were routinely killed on the tenth day after inoculation, and their brains were passed to an additional 6 mice by the intracerebral route.

Sabin and his associates¹⁰ have recently reported negative results in attempts to produce a vaccine for St. Louis encephalitis virus inactivated by ultraviolet rays.

We have prepared two lots of St. Louis encephalitis vaccine which stimulated immunity in mice against 400,000 to 500,000 minimum lethal doses of active virus given intracerebrally. The mice were injected intraperitoneally with 0.5 cc. of irradiated vaccine (4 per cent) at weekly intervals for three doses and given the challenge dose of homologous virus twenty days after the first dose of vaccine. Rapid immunogenic destruction of this virus vaccine was caused by over-irradiation.

TABLE 1.—Summary of Experiments on Relative Immunizing Value of Irradiated and Phenolized Rabies Vaccines Tested by the Habel Mouse Test

Experiment No.	Vaccine	Time of Irradiation for Complete Inactivation	No. of MLD Protection
76	Irradiated.....	0.33 sec.	56,000
	Irradiated *.....	0.17 sec.	20,000
	Phenolized control.....	.....	76
92	Irradiated.....	0.17 sec.	27,620
	Phenolized control.....	.....	10
	Illinois Health Dept., phenolized.....	.....	849
101	Irradiated.....	0.33 sec.	125,581
	Phenolized control.....	.....	2,477
	Illinois Health Dept., phenolized.....	.....	9,130
92 A	Irradiated.....	0.33 sec.	33,812
	Illinois Health Dept., phenolized.....	.....	6,169

* Centrifuged at 500 revolutions per minute for five minutes before irradiation.

ANTIGENICITY OF IRRADIATED BACTERIAL VACCINES

We have prepared killed vaccines for typhoid, pneumococcus (type 1) and Salmonella enteritidis. In preliminary scout experiments they appear to be equal or superior in antigenic potency to heat killed vaccines

9. Webster, L. T.: Diagnostic and Immunologic Tests of Rabies in Mice, *Am. J. Pub. Health* 26: 1207-1210 (Dec.) 1936.
10. Sabin, A. B., and others: The St. Louis and Japanese B Types of Epidemic Encephalitis: Development of Noninfective Vaccines: Report of Basic Data, *J. A. M. A.* 122: 477-486 (June 19) 1943.

prepared from the same bacterial suspensions. This work is now in progress, and details will be published later.

SUMMARY AND CONCLUSIONS

1. A new method has been developed for completely killing or inactivating turbid suspensions of bacteria and viruses in less than one second by exposing continu-

TABLE 2.—Effect of Storage at 5 C. on the Antigenicity of Irradiated Rabies Vaccine

Lot No.	Time	No. of MLD Protection
92.....	3 weeks	27,360
	5 months	33,812
	6 months	35,061
99.....	5 weeks	75,385
	6 months	68,100
100.....	2 weeks	120,001
	6½ months	136,200

ously flowing thin films to far and extreme ultraviolet irradiation. Intensity, film thickness, time of exposure and distance have been so standardized that experiments could be duplicated with consistent results.

2. By means of this new technic, suspensions containing approximately 1 billion organisms per cubic centimeters of the following bacteria were completely killed in 0.17 to 0.33 second exposure to ultraviolet rays: (1) Escherichia coli, (2) Eberthella typhosa (strain 58), (3) Salmonella enteritidis, (4) Staphylococcus aureus, (5) Streptococcus viridans and (6) Diplococcus pneumoniae (type 1).

3. Four per cent uncentrifuged brain tissue suspensions infected with fixed rabies virus were completely inactivated by irradiation for 0.17 to 0.33 second; an exposure twice this length was necessary to inactivate lightly centrifuged 4 per cent suspensions of St. Louis encephalitis virus.

4. Several lots of rabies vaccine inactivated by this irradiation technic consistently induced a higher degree of immunity in mice than control phenolized vaccines. The irradiated rabies vaccines exhibited no significant loss of potency after six months' storage at 5 C.

5. Two lots of St. Louis encephalitis vaccine inactivated by this irradiation technic conferred a high degree of immunity in mice.

6. Irradiation of rabies or St. Louis encephalitis viruses beyond the optimum time necessary for complete inactivation causes progressive diminution of antigenicity.

Food Value of Cheese.—Cheese is a highly nutritious, economical food. It is rich in protein, fat and mineral elements. The amount of protein and fat in a pound of good cheese equals that of a gallon of milk and appreciably exceeds that of the same weight of the best steak. The protein is of high quality; it consists largely of casein which in the ripening process has been partially digested. About 69 per cent of the nitrogen of ripened cheese (six months) is in soluble form. The fat of cheese is easily assimilated and differs but little in character from that of milk; its amount depends largely on whether whole or skim milk was used in the making. Cheese retains the calcium, phosphorous and sulfur of the milk and also appreciable amounts of iron and of vitamin A and B₂. It is a valuable article of diet.—McLester, James S.: Nutrition and Diet in Health and Disease, Philadelphia, W. B. Saunders Company, 1943.

THE PROBLEM OF THERMAL BURNS:
1944HENRY N. HARKINS, M.D., PH.D.
BALTIMORE

Before 1939 an average of 5,000 to 7,000 burn deaths occurred in the United States every year.¹ The present war has resulted in an unprecedented number of thermal burns, so that this subject is now in a phase of especial importance.

Burn treatment has always been somewhat empiric. The peculiar nature of the burn wound, representing as it does an actual destruction of tissue, renders no treatment completely effective. Because of this fact literally hundreds of burn remedies have been suggested. It is only recently that some order has come out of all this confusion. Possibly the two chief advances that have led to this are (1) the introduction of plasma therapy by Weiner, Rowlette and Elman² in 1936 and (2) the application of the method of aseptic pressure dressings in local burn therapy by Koch³ in 1941. It is interesting to note how these two advances dovetail, indicating the essential unity of all burn therapy. The use of plasma is essentially a general treatment and pressure dressings are a type of local treatment, yet part of the benefit of the latter comes from reducing plasma loss and aiding the general condition of the patient. In fact it may be said that no good local burn treatment will neglect the general condition of the patient and vice versa.

The problem of thermal burns is essentially twofold: mortality and morbidity; the patient and the burn wound; general care and local management. Both of these are important and, as Pack⁴ has so aptly said, "it is penny wise and pound foolish to consume invaluable time in applying perfect local dressings while the patient is sinking into irrecoverable shock." This symposium attempts to cover both of these aspects of burn treatment as completely as is possible in the space provided.

The following outline shows the division of the subject into seven articles:

1. The Problem of Thermal Burns: 1944. Henry N. Harkins, Johns Hopkins Hospital, Baltimore.
2. The Chemical Aspects of Burn Treatment. Oliver Cope, Massachusetts General Hospital, Boston.
3. The General Care of the Burned Patient. Conrad R. Lam, Henry Ford Hospital, Detroit.
4. The Present Status of the Tannic Acid Method in the Treatment of Burns. Walter E. Lee and Jonathan E. Rhoads, Pennsylvania Hospital, Philadelphia.
5. Surgical Cleanliness, Compression and Rest as Primary Surgical Principles in the Treatment of Burns. Sumner Koch, Northwestern University, Chicago.
6. The Early Plastic Care of Deep Burns. Fraser B. Gurd and John W. Gerrie, Montreal General Hospital and McGill University, Montreal.
7. The Late Plastic Care of Burn Scars and Deformities. John Staige Davis, Johns Hopkins Hospital, Baltimore.

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This paper, in a symposium on "The Treatment of Burns," is published under the auspices of the Section on Surgery, General and Abdominal.

1. Harkins, H. N.: The Treatment of Burns, Springfield, Ill., Charles C. Thomas, Publisher, 1942.
2. Weiner, D. O., Rowlette, A. P., and Elman, R.: Significance of Loss of Serum Protein in Therapy of Severe Burns. *Proc. Soc. Exper. Biol. & Med.* 34: 484-486 (May) 1936.
3. Koch, S. L., cited by Mason, M. E.: Local Treatment of the Burned Area. *Surg., Gynec. & Obst.* 72: 250-253 (Feb.) 1941.
4. Pack, G. L., cited by Harkins.¹

The present article outlines the important questions pertinent to the subject at the present time, many of which are answered or clarified in the remaining articles. Newer knowledge of the underlying chemical changes in burns on which all treatment, local and general, is based forms the thesis of Dr. Oliver Cope's paper. The practical application of this knowledge to the all important subject of the general care of the burned patient is delineated by Dr. Conrad Lam. Drs. Walter Lee and Jonathan Rhoads discuss the present status of the treatment with tannic acid, which, after a meteoric rise in popularity following its introduction in 1925, was probably the most widely used remedy until its recent displacement by the pressure dressing method. The latter method is described by its originator, Dr. Sumner Koch. The early plastic care of granulations by skin grafting, without which the treatment of no extensive third degree burn is complete, is covered by Drs. Fraser B. Gurd and John W. Gerrie of Montreal. Finally the subject of the late plastic care of burn scars and deformities, which will be a very important one in the immediate postwar period, is outlined by Dr. John Staige Davis.

GENERAL CARE

Early General Care.—This involves the prevention and treatment of shock, toxemia and sepsis. During the first forty-eight hours shock is of prime importance and the use of plasma is the chief item in its treatment. Since its introduction in the treatment of clinical burns by Weiner, Rowlette and Elman² this method has become so widely adopted that arguments in its favor are no longer necessary. It is enough to say that since the chief element in the pathology of burns is an extensive plasma loss, both to the outside in the form of weeping and into the burned tissues, it is of great importance that this plasma should be replaced. In very serious burns the patient may lose several liters of plasma within a few hours. If plasma is not available, albumin or even whole blood may be given although the contained cells in the latter are not necessary.

Plasma administration in burns should be on a quantitative basis just as is insulin administration in diabetes. When laboratory facilities are not available, the following ways of gaging dosage are useful:

1. From the clinical response.

2. From the size of the burn as calculated by Berkow's formula.⁵ Author's rule:⁶ Give 50 cc. of plasma for every 1 per cent of body surface burned; after twelve hours additional plasma may be necessary.

If laboratory facilities are available, the following methods of estimating plasma dosage may be used:

1. Formula of Black.⁷

2. Formula of Elkinton, Wolff and Lee.⁸

3. Formulas of author.⁹

5. Berkow, S. G.: A Method of Estimating the Extensiveness of Lesions (Burns and Scalds) Based on Surface Area Proportions. *Arch. Surg.* 8: 138-148 (Jan.) 1924.

6. Harkins, H. N.: The General Treatment of the Patient with a Severe Burn, in Burns, Shock, Wound Healing and Vascular Injuries, Military Surgical Manuals, National Research Council, Philadelphia, W. B. Saunders Company, 1943, vol. 5, chapter 1, pp. 3-26.

7. Black, D. A. K.: Treatment of Burn Shock with Plasma and Serum. *Brit. M. J.* 2: 693-697 (Nov. 23) 1940.

8. Elkinton, J. R., Wolff, W. A., and Lee, W. E.: Plasma Transfusion in the Treatment of the Fluid Shift in Severe Burns. *Ann. Surg.* 112: 150-157 (July) 1940.

9. Harkins, H. N.: The Treatment of Burns, with Particular Emphasis on the Management of Burn Shock, brochure distributed in connection with Scientific Exhibit at the meeting of American Medical Association, Cleveland, June 2-6, 1941; the General Treatment of the Patient with a Severe Burn.⁸

(a) One hundred cc. of plasma for every point hematocrit exceeds normal of 45.

(b) Fifty cc. of plasma for every point hemoglobin exceeds normal of 100.

(c) Fifty cc. of plasma for every 100,000 red count exceeds normal of 5 million.

4. Monogram of Jenkins, Schafer and Owens.¹⁰

In children the amount of plasma to be given should be proportionately less according to body weight. Furthermore, the calculations do not indicate the amount of plasma that will be needed to manage the entire course of the burn. Just as in a diabetic patient when the blood sugar indicates that 30 units of insulin is necessary, this does not mean that 30 units will suffice for a whole month, so in a serious burn case frequent determinations are essential. Hematocrit readings should be taken as often as every three hours during the first day after a severe burn and the amount of plasma indicated each time given. The danger of burn shock is not over until the thirty-sixth to the forty-eighth hour.

Other measures of possible value in burn shock include:

Sodium Lactate: Recent articles have drawn attention to the possible beneficial effects of sodium lactate in the treatment of burn shock. Rosenthal,¹¹ experimenting on mice, produced a standard burn by immersing the animals up to the neck in water at 70 C. for a measured period of seconds. A large series of mice was thus burned, and treated groups were compared with untreated controls as to mortality. Sodium chloride by mouth or intraperitoneally caused a significant reduction in mortality. Intravenous administration was less effective. Isotonic solution of sodium chloride by mouth was superior to hypertonic solutions. Sodium acetate, succinate, bicarbonate and lactate were as effective as sodium chloride. Mouse serum injected intravenously was slightly less active than equivalent volumes of 0.9 per cent sodium chloride orally. These results are of great interest especially as they do not agree with the present concept of the superiority of intravenous plasma or serum in the therapy of burn shock. The possibility arises that the results obtained on mice are not entirely applicable to man.

A more recent author, Fox,¹² however, has made the application to man and in a series of 23 severe third degree burns described the clinical use of isotonic solution of sodium lactate administered orally (instead of plasma injected intravenously) in combating burn shock. A careful record of fluid intake was made and an exact schedule used so that approximately 7 to 10 liters (from 10 to 15 per cent of body weight) of the isotonic sodium lactate was administered within the first twenty-four hours. Any vomiting such as occurs frequently in severe burns was treated by administration of more fluid. This work of Fox needs careful consideration, it is so revolutionary in its implications. The results seem good, and the obvious objection that only minor burns were treated is refuted by the charts

which indicate extensive third degree burns. On the other hand, adequate studies of plasma volume in these cases were not reported, and the possibility that it may have been dangerously low is to be considered. At the present time sodium lactate would seem to offer promise as an adjuvant to plasma therapy rather than as a substitute for it. A further discussion of Fox's work is included in Dr. Cope's article which appears later in this symposium.

Gelatin: Parkins, Koop, Riegel, Vars and Lockwood¹³ studied gelatin solutions as a plasma substitute in experimental burns. These authors found that in reproducible burns in dogs the mortality after gelatin therapy was over three times that which followed plasma therapy.

Adrenal Cortex Extract: Rhoads, Wolff and Lee¹⁴ reported promising results from the use of this substance. They estimated that after a severe burn the capillaries do not regain their normal permeability until the fortieth hour, but after treatment with adrenal cortex extract such normality was attained by the eighteenth hour. A more recent report based on additional cases by Rhoads, Wolff, Saltonstall and Lee¹⁵ reverses this opinion, stating that "the results in this larger series have not fulfilled the promise of the earlier cases. They do not provide a satisfactory basis for the use of adrenal cortical extract in the routine treatment of shock following burns." These clinical observations are corroborated by the experimental studies of Rosenthal,¹¹ who tested standardized burns in mice and found no protective action whatever by either desoxycorticosterone or adrenal cortex extract injected subcutaneously as compared with controls with saline solution.

Oxygen: This substance has considerable value in burns, especially in those instances in which coincidental pulmonary edema exists. This fact was especially observed in the Coconut Grove disaster as shown by Beecher.¹⁶

Morphine: The recent revised (1943) edition of the pamphlet distributed by the Medical Division of the Office of Civilian Defense¹⁷ states, concerning the use of morphine, that "burned patients usually require large doses of morphine. Following the initial dose of one-half grain, an additional one-fourth grain may be given (if required) as often as every three hours, except in cases of lung damage." In this connection a word of caution is advisable, especially since it is the observation of some of us that burned patients often have relatively little pain after the first half hour. They may moan but when questioned do not always complain of pain. The word of caution comes from observations of Beecher¹⁸ in the North African theater of

10. Jenkins, H. P.; Schafer, P. W., and Owens, F. M., Jr.: Guide to Replacement Therapy for Loss of Blood or Plasma, Arch. Surg. 47:1-3 (July) 1943.

11. Rosenthal, S. M.: Experimental Chemotherapy of Burns and Shock: III. Effects of Systemic Therapy on Mortality, Pub. Health Rep. 58:513-522 (March 26) 1943.

12. Fox, C. L., Jr.: Oral Sodium Lactate in the Treatment of Burn Shock, J. A. M. A. 124:207-212 (Jan. 22) 1944.

13. Parkins, W. M.; Koop, C. E.; Riegel, C.; Vars, H. M., and Lockwood, J. S.: Gelatin as a Plasma Substitute, with Particular Reference to Experimental Hemorrhage and Burn Shock, Ann. Surg. 118:193-214 (Aug.) 1943.

14. Rhoads, J. E.; Wolff, W. A., and Lee, W. E.: The Use of Adrenal Cortical Extract in the Treatment of Traumatic Shock of Burns, Ann. Surg. 113:955-968 (June) 1941.

15. Rhoads, J. E.; Wolff, W. A.; Saltonstall, H., and Lee, W. E.: Further Experiences with Adrenal Cortical Extract in the Treatment of Burn Shock, Ann. Surg. 118:982-987 (Dec.) 1943.

16. Beecher, H. K.: Resuscitation and Sedation of Patients with Burns Which Include the Airway: Some Problems of Immediate Therapy, Ann. Surg. 117:825-833 (June) 1943.

17. Treatment of Burns and Prevention of Wound Infections, United States Office of Civilian Defense, Emergency Management Office, April 1943.

18. Beecher, H. K.: Delayed Morphine Poisoning in Battle Casualties, J. A. M. A. 124:1193-1194 (April 22) 1944.

operations. Men who were given large doses of morphine when in severe shock showed signs of morphine poisoning (pinpoint pupils and deep respiratory depression) after receiving shock therapy. Beecher stated that "it was not likely that morphine administered subcutaneously under these circumstances would be absorbed. Apparently it was not, for in many cases no pain relief occurred following its use, and the first dose of $\frac{1}{2}$ grain (30 mg.) of morphine would be followed by a second or even a third injection over a period of hours, all of these causing little if any effect. . . . In men in shock, restoration of blood volume and blood pressure, followed eventually by warming, with renewal of the peripheral circulation, led to the seriously rapid absorption of all the morphine injected, and poisoning developed."

Other elements to consider in the early general care of the burned patient are the control of burn toxemia and of burn sepsis. Toxemia still remains somewhat of a mystery. While tannic acid may cause some toxemia, its abandonment has not entirely eliminated burn toxemia. The adequate administration of dextrose and protein and the control of anuria—still an important problem—remain the chief modes of managing toxemia. The management of sepsis is mainly a question of prophylaxis in the original care of the burn wound, but oral administration of sulfonamides and more recently of penicillin, parenteral or local, have much to offer. Tennison¹⁹ has suggested the local use of succinylsulfathiazole, the advantage being its relative nonabsorbability.

Late General Care.—Infection still remains a problem at this stage, but essentially its control depends on maintenance of the patient's nutrition. Anemia, avitaminosis and hypoproteinemia are troublesome and demand continued correction. Taylor, Levenson, Davidson, Browder and Lund²⁰ have drawn especial attention to this most important aspect of the subject. The use of amino acid solutions is of value in the control of hypoproteinemia.

LOCAL CARE

Early Local Care.—At the present time tannic acid is declining rapidly in popularity as the pressure dressing method of therapy is becoming more widely used. Reasons for the abandonment of tannic acid include the facts that (1) the brittle eschar frequently becomes infected in third degree burns, (2) the difficulty in removing the eschar delays skin grafting, (3) destruction of remaining skin islands delays healing and increases scarring (Cannon and Cope,²¹ Hirshfeld, Pilling and Maun²²) and (4) the absorption of tannic acid leads to focal necrosis of the centers of the liver lobules. This last complication deserves separate mention, as follows:

Liver Necrosis.—The possibility that tannic acid might cause focal central necrosis of the liver was first postulated by Wilson²³ in Great Britain in 1938. This

action was shown to be true experimentally by Wells, Humphrey and Coll²⁴ and later by Forbes and Evans,²⁵ by Baker and Handler²⁶ and by Hartman and Romence.²⁷ Erb, Morgan and Farmer²⁸ studied the postmortem findings in 61 cases of burns. Of these, 41 were tanned, with 25 (61 per cent) instances of liver necrosis, and 20 were not tanned, with 0 (0 per cent) instances of liver necrosis. Rosenthal,²⁹ working with mice, found that "significant increases in early mortality were produced by . . . tannic acid solutions and ointment . . . when applied to a scalded area." These observations seem to point rather conclusively to the potential danger of liver necrosis from tannic acid therapy. A closer study of the reported cases and experiments indicates that the tanning methods in which the active agent is kept in contact with the burned surface in a moist state for a long period of time (tannic acid jelly or baths) are especially dangerous. The increased chances for absorption seem to be the influencing factor. Rapid tanning, as by tannic acid-silver nitrate, where the agents dry within a matter of minutes or seconds, is less dangerous in this regard.

Abandonment of tannic acid has not entirely eliminated burn toxemia, and the question still remains whether selected burn cases may not under certain conditions be treated with advantage by this type of therapy. A more complete discussion of this important subject is made by Lee and Rhoads in their article in this symposium.

First Aid Care.—This subject is best summarized by quoting Koch:³⁰

How can we prevent infection? By covering the burned area immediately with clean towels and not exposing it even momentarily until personnel with masked faces and cleansed hands are ready to carry on. The practicability and helpful results of such protection were demonstrated by Churchill and his associates at the Massachusetts General Hospital after the Coconut Grove fire. Burned surfaces were covered with sterile towels in the emergency room and kept covered until the patients could be cared for by masked, gowned and gloved personnel.

Early Local Definitive Care.—The use of pressure dressings for wounds and skin grafts is not new, but the application of this method to burns was first made by Koch³ in 1941. A full description of this important type of management is given in Dr. Koch's chapter in this symposium. In the treatment of the victims of the Coconut Grove disaster Cope³¹ did not debride or cleanse his burns, whereas Koch's original method advised such cleansing. A discussion of this cogent aspect of the subject is given in Dr. Koch's chapter.

24. Wells, D. B.; Humphrey, H. D., and Coll, J. J.: The Relation of Tannic Acid to the Liver Necrosis Occurring in Burns, *New England J. Med.* 226: 629-635 (April 16) 1942.

25. Forbes, J. C., and Evans, E. I.: Tannic Acid and Liver Necrosis, *Surg., Gynec. & Obst.* 76: 612-613 (May) 1943.

26. Baker, R. D., and Handler, P.: Animal Experiments with Tannic Acid Suggested by the Tannic Acid Treatment of Burns, *Ann. Surg.* 118: 417-426 (Sept.) 1943.

27. Hartman, F. W., and Romence, H. L.: Liver Necrosis in Burns, *Ann. Surg.* 118: 402-416 (Sept.) 1943.

28. Erb, I. H.; Morgan, E. M., and Farmer, A. W.: The Pathology of Burns: The Pathological Picture as Revealed at Autopsy in a Series of Sixty-one Fatal Cases Treated at the Hospital for Sick Children, Toronto, Canada, *Ann. Surg.* 117: 234-255 (Feb.) 1943.

29. Rosenthal, S. M.: Experimental Chemotherapy of Burns and Shock: I. Methods; II. Effects of Local Therapy upon Mortality from Shock, *Pub. Health Rep.* 57: 1923-1935 (Dec. 18) 1942.

30. Koch, S. L., in discussion on paper by Whiteley, A. O.: Basic Principles in the Treatment of Thermal Burns, *Ann. Surg.* 118: 187-192 (Aug.) 1943.

31. Cope, O.: The Treatment of Surface Burns, *Ann. Surg.* 117: 585-593 (June) 1943.

19. Tennison, C. W.: Use of Nonabsorbable Sulfasuxidine in Extensive Burns, *Surgery* 15: 332 (Feb.) 1944.

20. Taylor, F. H. L.; Levenson, S. M.; Davidson, C. S.; Browder, N. C., and Lund, C. C.: Problems of Protein Nutrition in Burned Patients, *Ann. Surg.* 118: 215-224 (Aug.) 1943.

21. Cannon, B., and Cope, O.: Rate of Epithelial Regeneration, *Ann. Surg.* 117: 85-92 (Jan.) 1943.

22. Hirshfeld, J. W.; Pilling, M. A., and Maun, M. E.: A Comparison of the Effects of Tanning Agents and of Vaseline Gaze on Fresh Wounds of Man, *Surg., Gynec. & Obst.* 76: 556-561 (May) 1943.

23. Wilson, W. C.: Personal communication to the author, October 1938.

Another treatment that seems to offer some promise is the encasing treatment of burns of the extremities in close fitting plaster of paris casts as advocated by Levenson and Lund.³² As with the pressure dressing method, the first change of the bandage or cast is not made for ten to fourteen days. The use of plaster casts is based on the experimental work of Glenn, Gilbert and Drinker.³³

It cannot be emphasized too strongly that local and general care must work conjointly to a common end. Whereas general care is essentially directed toward saving the patient's life and local care toward hastening healing and the prevention of scars and contractures, each should consider the other. In fact, the best local remedies (pressure dressings and the like) go far toward minimizing plasma loss and saving the patient's life, while adequate transfusions of plasma and blood hasten the healing of the local wound.

Late Local Care.—This includes the skin grafting of granulating surfaces and the correction of scars, deformities and contractures. It should be noted that the former (skin grafting of open wounds) must be done as promptly as possible, preferably within the first six weeks after the burn, and usually by the same surgeon and in the same hospital in which the original burn care was given. On the other hand, the latter (correction of scars, deformities and contractures) is best postponed for three to six months and can safely be done by other surgeons, preferably those especially trained in plastic work and possibly thousands of miles from the original scene of the accident.

The recent development of coagulum contact skin grafts by Sano³⁴ would seem to have little application to the covering of the extensive granulating surfaces that follow severe burns.

CONCLUSIONS

1. In the early control of burn shock, adequate doses of plasma are of especial importance.

2. In the late control of burn anemia and malnutrition, blood transfusions, protein and amino acids are of value.

3. The local first aid treatment of burns should include the application of clean towels until such time as definitive management by aseptic means is available.

4. The application of a sterile compression bandage which is not changed until the tenth to the fourteenth day after the burn is at the present writing the best definitive local management of thermal burns.

5. In all third degree burns the resulting granulating surfaces should be skin grafted as soon as possible. No burn is cured until any existing granulating surfaces are healed.

6. The late plastic correction of scars, deformities and contractures is of importance but in most cases can safely be delayed for three to six months.

THE CHEMICAL ASPECTS OF BURN TREATMENT

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The rationale of the chemical treatment of burns is based on what is known of their pathologic physiology. In the modern therapy of the burned patient the chemical treatment is important, and a thorough understanding of the pathologic physiology is a requisite to the physician who treats the burned patient with intelligence. In this article are presented current concepts of the nature and consequences of a burn wound and the treatment recommended.

NATURE OF A BURN WOUND

The application of sufficient heat to a body surface to produce a burn sets in motion a sequence of events. The changes which appear in a patient with a burn, mild or severe, within the first hours are manifested as pain, alterations in blood flow, increase in capillary permeability, edema and increased flow in the lymphatic trunks.

Necrosis.—In a severe burn the picture is complicated by cell necrosis and its consequences. The superficial layers of the surface are, of course, the first affected. If the necrosis penetrates the epidermis, this layer may be lifted up by the pressure of the excessive fluid beneath and form the roofs of blebs. As temperature or duration of exposure is increased, the cells of the epidermis coagulate and no bleb can form. In the most intense burn, the cell necrosis and coagulation have penetrated the skin into the underlying tissues; the whole skin is turned into an eschar. No matter how deep the cell necrosis, beneath it there is always an edematous zone of first degree or incomplete burn where the cells are viable.

Pain.—The pain of a burn arises from the sensory nerve endings of the skin and the nerves of the vascular bed and of the deeper tissues. The immediate and severe pain is due to the effect of the heat on the skin, and if the nerves have not been destroyed the pain persists. Intense pain also arises in the damaged vascular bed if the intracapillary pressure is raised. Pain due to distention of the tissues is late and moderate.

Increased Blood Flow.—The alterations in blood flow are due principally to local damage of the vessels. Vascular reflexes, initiated by pain, also play a part. Immediately following the application of heat there is a transitory blanching of the affected surface followed by a flush which slowly extends out beyond the area of damage as a flare. The blanching and flush are due to direct trauma, but the flare is of neurogenic origin.

The flush or capillary dilatation is accompanied by an increased blood flow, the impulse in the artery leading to the burned area being exaggerated. In experimental burns of the feet of dogs, the arterial flow may be doubled and the arteriovenous oxygen difference just proximal to the burned area is decreased to almost zero.¹

32. Levenson, S. M., and Lund, C. C.: The Treatment of Burns of the Extremities with Close Fitting Plaster of Paris Casts, J. A. M. A. 123: 272-277 (Oct. 2) 1943.

33. Glenn, W. W. L.; Gilbert, H. H., and Drinker, C. K.: The Treatment of Burns by the Closed Plaster Method, with Certain Physiological Considerations Implicit in the Success of This Technique, J. Clin. Investigation 22: 609-625 (July) 1943.

34. Sano, M. E.: A Coagulum Contact Method of Skin Grafting as Applied to Human Grafts, Surg., Gynec. & Obst. 77: 510-513 (Nov.) 1943.

From the Surgical Research Laboratories of the Harvard Medical School and the Surgical Services at the Massachusetts General Hospital.

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Part of the work described in this paper was done under a contract, recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and Harvard University.

1. Unpublished data from this laboratory.

Although vascular dilatation is the rule, the pain sometimes causes peripheral vasoconstriction with apparent decrease in blood flow to the burned area:

A patient was seen at this hospital thirty minutes after enduring a steam burn of the low thigh and knee. Blebs had already formed and ruptured. Instead of a flushed, weeping surface, the whole leg was blanched and the exposed surface dry. The foot and leg below the burn were cold and clammy. The patient was suffering intense pain. After the administration of 16 mg. of morphine sulfate the pain gradually subsided. As the patient felt more comfortable, a flush slowly spread over the burned surface and weeping started.²

Increased Capillary Permeability.—Capillary permeability in the burned area is increased, even with the mildest trauma, and a protein-rich plasma filtrate pours out into the extracellular spaces. The edema produced involves not only the skin itself but also the subcutaneous tissue spaces, and the volume of the vascular fluid lost into the tissues is greater than would be expected from the visible swelling of the skin. The combined vascular response and edema has been called the triple response by Thomas Lewis.³

The heat also increases lymphatic permeability,⁴ and, accompanying the formation of edema and rise in interstitial fluid pressure, there is an increased return flow of the capillary filtrate into the blood stream through the lymphatic vessels.⁵

The volume of edema fluid is proportionate to the surface area rather than to the depth of the burn. The other characteristics of edema fluid are a high concentration of plasma protein and a lack of a substance to coagulate this protein.

The clue to the chemical nature of edema fluid is found in the analysis of bleb fluid. In the human being it has an average protein content of 4.0 Gm. per hundred cubic centimeters, the concentration fluctuating slightly with the severity of the burn and decreasing with the healing of the wound.¹ (The figures reported from other laboratories vary slightly.⁶) The proportionate concentration of albumin to globulin is greater than in blood plasma. The concentration of fibrinogen and prothrombin approximates that in blood serum. The diffusible portions of the electrolytes, carbohydrate and nonprotein nitrogenous substances have the same concentration as that in the blood.

The relatively greater proportion of albumin in edema fluid means that the albumin molecule escapes from the damaged capillaries more readily than the globulins. Since the albumin is the molecule in the plasma principally responsible for the osmotic pressure of the blood, its greater loss means a proportionately high loss of osmotic power of the blood.

In spite of the fact that all of the elements of plasma necessary for coagulation have seeped into the edema fluid, coagulation of this fluid rarely takes place in an uninfected burn wound. (The heat coagulates the cellular protein in situ, but the subsequent edema does not coagulate.) A spider web clot may form in a bleb,

usually not before forty-eight hours. The fluid aspirated from such a bleb clots in a test tube, proving incomplete coagulation previously. This is also proved by the observations that a clean burn with ruptured blisters continues to weep for several days and that the fluid of an unruptured bleb is slowly resorbed as late as the third to eighth day.

The failure of burn edema fluid to coagulate is in contrast to the rapid coagulation of the protein in interstitial fluid following mechanical trauma sufficient to cause cell injury. Mechanical trauma to cells releases thrombokinase, which activates the enzyme thrombin, which in turn precipitates fibrin from the fibrinogen present in the interstitial fluid.

The failure of a burn wound to clot is presumably due to the absence of thrombokinase. Contact with substances which clot blood also causes bleb fluid to clot. The edema fluid of experimental burns has been shown to coagulate immediately on the injection of a tissue extract known to have a high content of thrombokinase.⁷ It is presumed that if thrombokinase itself is present in the normal cell it is thermolabile or, if cells contain only its precursor, the precursor is not activated by heat.

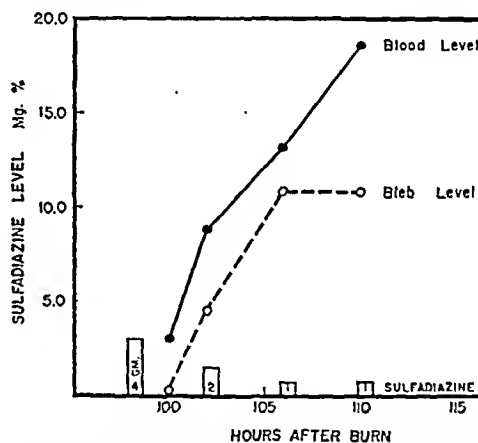


Fig. 1.—Concentration of sulfadiazine in blood and bleb fluid after withholding the drug until the fourth day. The patient had a second degree burn with multiple blebs. Four Gm. of sulfadiazine was given by mouth ninety-eight hours after the burn. The rise in concentration in the bleb fluid is almost as prompt as in the blood stream even at this late time after the burn. Chemotherapy, internally administered, even though delayed, should be effective.

Clinicians have observed the retarded coagulation of the burn wound but have failed to grasp the implications. Water soluble substances placed on the surface of a burn wound with ruptured blebs will be dissolved and absorbed into the general circulation. That sulfonamides applied to the surface are absorbable and may reach toxic levels in the blood is to be anticipated.⁸

The converse is true; substances which permeate the capillary wall, if injected into the general circulation, will be found in the fluid of the burn wound in the same concentration as in the blood plasma. It has been shown that sulfonamides administered intravenously or by mouth are found in the bleb fluid in the same concentration as in the blood plasma.⁹

In figure 1 the rise in sulfonamide concentration in blood plasma and bleb fluid is illustrated in a patient with a second degree burn. There were multiple unruptured blebs. Sulfon-

2. Reflex vasoconstriction on stimulation of the central end of a peripheral nerve, such as the sciatic, is known to experimental physiologists. Such a reflex following a burn decreases the loss of plasma from the capillaries into the burned tissues, thus serving a purpose. Were the effect of pain on the organism limited to this reflex, relief of pain would be contraindicated.

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5. Field, M. E.; Drinker, C. K., and White, J. C.: *Lymph Pressures in Sterile Inflammation*, *J. Exper. Med.* 56: 363-370 (Sept.) 1932. McMaisters.

6. Harkins, H. N.: *The Treatment of Burns*, Springfield, Ill., Charles C Thomas, Publisher, 1942.

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8. Hooker, D. H., and Lam, C. R.: *Absorption of Sulfanilamide from Burned Surfaces*, *Surgery* 9: 534-537 (April) 1941.

9. Cope, O.: *The Treatment of the Surface Burn*, *Ann. Surg.* 117: 885-893 (June) 1943.

amides were withheld until ninety-eight hours after the burn, when 4 Gm. of sulfadiazine was given by mouth. The concentration of sulfadiazine measured at two hourly intervals in both blood plasma and bleb fluid showed only a slightly delayed rise in the bleb fluid as compared with blood even at this late time after the burn.

The nature of a burn wound may be altered by infection, a consequence of cell necrosis. When the corneum is ruptured, organisms penetrate freely into the recesses of the wound and infection results. As long as the corneum is intact, even though killed by heat and lifted off the dermis, it offers a formidable barrier to bacteria. This is proved by the observation that the fluid of unruptured blebs is free of virulent organisms.⁹

GENERAL CONSEQUENCES OF LOCAL CHANGES

As a result of the local changes in the wound, the life of the burned patient is endangered. The principal hazards are shock and infection. To these may be added the problem of disposing of the abnormal breakdown products of protein and the surfeit of water, salts and protein resulting from therapy.

Shock.—Shock develops rapidly in an extensively burned patient. Although pain may cause generalized vasomotor collapse, this is transitory and of relatively little clinical importance. The burn shock to be feared is that produced by a decreasing circulating plasma volume. The decrease is a result of the continued loss of plasma through the damaged capillaries into the burn wound.¹⁰ The venous blood returning from the wound has a disproportionately high content of red cells, and eventual generalized hemoconcentration follows. Since the plasma remaining in the blood stream loses more albumin than globulin it becomes increasingly difficult for the circulating blood to withdraw fluid from elsewhere in the body, and increasing concentration of the plasma itself ensues. Not only is the effective plasma volume reduced but the remaining blood is so viscid that its flow is impeded, cardiac output is curtailed, blood pressure falls and an inadequate circulation to normal organs and tissues, as well as to the burn, results.

The most serious consequence of the circulatory failure is the disturbance of organ function. An inadequate supply of oxygen forces some tissues to subsist under anaerobic conditions. Since brain is unable to survive in the absence of oxygen, the body makes an effort to redistribute blood to the higher nervous centers in order to maintain life. This means that other organs, such as the intestinal tract, kidney, liver, and muscle, may be forced to live under almost completely anaerobic conditions.

Muscle is able to survive anaerobically, but the products of its metabolism differ from those in the presence of oxygen. Dextrose instead of being broken down completely to carbon dioxide and water is metabolized only as far as lactic and pyruvic acids.¹¹ Since the failing circulation is unable to remove the waste products of metabolism, these fixed acids accumulate in the muscle, and an alteration in electrolyte balance or acidosis results.

The liver suffers under conditions of a failing circulation, for it is dependent for part of its oxygen on

blood which has already supplied another organ. The liver derives its oxygen from the portal vein blood as well as from that of the hepatic artery. With a drop in cardiac output, the blood flow to the intestinal tract is one of the first reduced by the body's compensating mechanism. The intestinal tract removes all of the oxygen it can from the blood passing through it, with the result that by the time the blood reaches the liver it contains but little oxygen. In the absence of oxygen the liver cannot perform certain of its functions, deamination and glycogen production.¹² Amino acids, a normal breakdown product of protein metabolism, accumulate in the blood. The glycogen store is rapidly depleted and resynthesis prevented.

The kidney is unable to perform its function of urine formation without an adequate blood flow. Waste products accumulate, and its compensating electrolyte selectivity is lost. Normally, if fixed acids appear in excess in the blood, the kidney excretes them by excluding the volatile carbonic acid and using ammonia.

Burn shock is accompanied by dehydration and electrolyte imbalance. Dehydration of the unburned tissues of the body continues slowly so long as hemoconcentration is present. The blood withdraws fluid and electrolytes from the interstitial spaces but, as this source is drained, intracellular fluid in turn is tapped. With the passage of water from cells to extracellular spaces, electrolytes also must pass in order to maintain isotonicity on both sides of the cell membrane. Sodium and chloride are the predominant ions of the extracellular fluid, while potassium and phosphate are their counterparts within the cells. With dehydration, therefore, the levels of phosphate and potassium rise in interstitial fluid and blood. As dehydration continues, cell metabolism is disturbed and, with the progression of burn shock, cells die. It is not proved whether it is the accumulation of phosphate and potassium in abnormal concentrations in the interstitial fluid that poisons the cells or whether it is the lack of adequate fluid and electrolyte within.

The pattern of the electrolyte imbalance encountered in untreated shock, as the consequence of prolonged inadequate circulation, is determined by the relative contribution of each of its three causes. The three causes are dehydration, anaerobic metabolism and absent kidney function. The pattern may be further altered by therapy and infection.

Infection.—The growth of infective organisms in a burn wound not only increases destruction of viable tissue and delays cellular regeneration but also fosters a generalized toxemia and malnutrition.

The degrees of infection and shock in the burned patient are closely interwoven. Infectious toxemia abets the shock due to loss of an effective blood volume, and it is probable that the worse the shock the more rapid the growth of organisms. Many of the virulent organisms, such as certain strains of streptococci, proliferate more rapidly under partially anaerobic conditions. Since in shock there is a shortage of oxygen in the burn wound, such organisms flourish and bacterial toxemia threatens in a few hours.

Infection adds to the nutritional load of the burned patient. There is some loss of nitrogen even with a moderate burn. In patients with deep, widespread, infected burns there is wasting accompanied by large

10. Blalock, A.: Experimental Shock: VII. The Importance of the Local Loss of Fluid in the Production of the Low Blood Pressure After Burns, *Arch. Surg.* **22**: 610-616 (April) 1931. Harkins, H. N.: Experimental Burns: I. The Rate of Fluid Shift and Its Relation to the Onset of Shock in Severe Burns, *ibid.* **31**: 71-85 (July) 1935.
11. Lipmann, F.: Pasteur Effect, in *A Symposium on Respiratory Enzymes*, Madison, University of Wisconsin Press, 1942.

12. Engel, F. L.; Harrison, H. C., and Long, C. N. H.: Biochemical Studies on Shock: III. The Role of the Liver and the Hepatic Circulation in the Metabolic Changes During Hemorrhagic Shock in the Rat and the Cat, *J. Exper. Med.* **79**: 9-22 (Jan) 1944.

losses of nitrogen. Protein is discharged from the wound and excreted as breakdown products through the kidney. If the infection is not controlled, cachexia develops. Anemia may also result from infection, and rapidly if the toxemia is severe.

Late Resorption of Edema Fluid.—The burn wound increases the capacity of the extracellular fluid reservoir, and this reservoir must be kept filled by the addition of plasma protein, electrolyte and water in order to maintain bodily function. At the height of wound edema, therefore, there will be within the extracellular spaces a superabundance of vascular protein and fluid. When the lymphatic resorption of fluid from the wound exceeds the leakage into the wound and edema resorption has begun, the body is faced with the problem of eliminating the extra amount of plasma protein and fluid in order to prevent an excess plasma volume. In a burn of small area the excess protein and fluid offers no problem, since the protein can be either stored or metabolized and the fluid excreted by the kidney. In an extensive burn an amount of plasma and fluid will have been given which may prove unmanageable during the period of resorption.

The edema of the burn wound usually reaches its maximum within the first thirty-six to forty-eight hours and then begins to subside. By the end of five to seven days, if there is no active infection, the edema has almost entirely disappeared. It is after the third day, therefore, that the patient may develop an increased plasma volume and pulmonary edema. With an excessive plasma volume the hematocrit falls. With the destruction of red cells by infectious toxemia there is also a fall in hematocrit. From the point of view of therapy the two must be differentiated.

Elimination of Abnormal Protein.—Heat denatures protein, and the elimination of such protein may prove a burden to the kidney. Abnormal protein is created in the cells necrotized by the heat and in the surrounding blood and fluid. Some of the tissue proteins are eliminated as slough from the burn wound. The blood proteins are resorbed into the circulation and have to be either metabolized or excreted.

Hemolysis is an accompaniment of severe burns and is believed to be the result of the exposure of the red cells to heat. In experimental animals, hemolysis is encountered following a boiling water burn of the leg only if the exposure exceeds twenty seconds.¹ Shen and Ham¹³ have noted increased fragility of red cells following burns.

The kidney may find it difficult to eliminate hemoglobin. Massive hemoglobinuria was encountered in a number of the patients of the Coconut Grove fire. In some no residual disturbance of kidney function resulted.¹⁴ In others the hemoglobinuria was associated with decreased elimination of other substances.¹³ The maintenance of adequate blood flow to the kidney by the prevention of shock is probably the deciding factor in overcoming the load of hemoglobinuria. In the cases without residual kidney damage the sodium bicarbonate therapy accompanying the sulfonamide therapy may have played a preventive role.

Albuminuria is unpredictable; it does not necessarily occur in even extensively burned patients.¹⁴ The pre-

cipitable protein is eliminated by the kidney, presumably because it is an abnormal protein. It may be abnormal as a result of infection as much as of the burn.

CHEMICAL TREATMENT

The chemical treatment of the burned patient is directed toward the control of shock and infection and the production of the optimal condition of nutrition for wound healing.

Shock.—The ideal chemical treatment of burn shock would be the prevention of shock by an agent which would remedy the abnormal capillary permeability. Such treatment would prevent the excessive loss of plasma from the circulation. No chemical agent is known which will do this. It has been thought that adrenal cortex extract and desoxycorticosterone acetate were such agents, but on analysis these have been found to be ineffectual.¹⁵ Posterior pituitary has been suggested, since it causes arterial constriction and reduction in blood flow. Theoretically, therefore, it should diminish the plasma loss but it has side-effects, the most undesirable of which is constriction of the coronary arteries, and cannot be recommended.

It is possible, although not by a chemical agent, to reduce the plasma loss by the application of cold or pressure. Cold produces its effect by causing reflex arteriolar constriction and reduction in blood flow. It has limited therapeutic use, since, if it is applied for any length of time or at too low a temperature, frostbite will result. If too extensive an area of the body is chilled the body temperature will fall. Yet the application of cold nonetheless for a burn of a single extremity should be resorted to when other measures for the relief of shock (and pain) are not available.

A plaster bandage or elastic pressure dressing applied to the head or to an extremity diminishes the plasma filtration from the capillaries by raising the interstitial fluid pressure. If the burn is deep, however, the escaped plasma may be forced through the tissues and appear as edema proximal to the dressing. The dressings must be applied with graded pressure, the greatest pressure being at the most distal portion. A constricting band proximally will result in occlusion of blood flow as edema develops, and gangrene will result.

Replacement of Lost Plasma Volume.—It is beyond our control to affect the concentration of water, electrolyte and plasma protein within the wound, and the chemical treatment of shock resolves itself into maintaining normal concentrations within the blood stream and unburned interstitial spaces and the administration of the fluid and foods which the body requires for kidney function and normal metabolism. Since the leakage of plasma starts immediately after the burn and since efforts should be directed toward the prevention of shock, the replenishment of plasma volume is to be started as soon as possible and to be continued during the period of increasing edema.

Theoretically the best solution to inject into the blood stream to replace the plasma is a solution chemically identical to that being lost. Such a solution can be made by diluting human plasma with an equal volume of isotonic solution of sodium chloride and adding sufficient albumin concentrate to raise the protein content to 4.0 Gm. per hundred cubic centimeters.

There are reasons which make it advisable to inject into the blood stream the most concentrated solution of plasma protein possible. A solution of high colloid osmotic pressure should retard the leakage through the

13. Shen, S. C., and Ham, T. H.: Studies on the Destruction of Red Blood Cells: III. Mechanism and Complications of Hemoglobinuria in Patients with Thermal Burns; Spherocytosis and Increased Osmotic Fragility of Red Blood Cells, *New England J. Med.* 229: 701-713 (Nov. 4) 1943.

14. Cope, O., and Rhineland, F. W.: The Problem of Burn Shock Complicated by Pulmonary Damage, *Ann. Surg.* 117: 915-928 (June) 1943.

15. Cope, O., and Moore, F. D.: A Study of Capillary Permeability in Experimental Burns and Burn Shock Using Radioactive Dyes in Blood and Lymph, *J. Clin. Investigation* 23: 241-257 (March) 1944. Rhoads, J. E.; Wolf, W. A.; Saltonstall, H., and Lee, W. E.: Further Experiences with Adrenal Cortical Extract in the Treatment of Burn Shock, *Ann. Surg.* 118: 982-987 (Dec.) 1943. Cope and Rhineland, loc. cit.

capillaries. This is particularly important if there is pulmonary damage.¹⁴ When a high concentration of protein is used, a smaller volume has to be injected intravenously. The remainder of the required fluid can be given by mouth, and this will prove more satisfactory to the patient. Whole plasma, therefore, should be injected rather than dilute plasma. There is one objection to giving full strength plasma; it flows slowly through a needle and if the patient is in shock it is imperative that the plasma protein replacement be expedited and pumping with a syringe may be required.

In the estimation of the volume of plasma to be replaced, calculate in terms of undiluted plasma. Since the plasma required is proportionate to the area of the burn, the surface area formula developed by Berkow and applied to burn plasma dosage by Harkins¹⁶ is logical. For each 10 per cent of the body surface burned, 500 cc., or 2 units, of plasma should be given over the first twenty-four hours. In the second twenty-four hours approximately half of this amount will be required. When the patient is seen within the first half hour after the burn there will be little hemoconcentration to combat, and two thirds of the plasma should be injected in the first twelve hours and the remainder in the second twelve hours.

When the patient is not seen until shock is imminent and hemoconcentration is advanced, the plasma must be injected rapidly until hemoconcentration is virtually relieved. The remaining volume of the twenty-four hour requirement may have to be supplemented. If a hematocrit reading can be immediately obtained it is more efficient in this patient to calculate the initial requirement by using the formula of Harkins.¹⁷ For each per cent that the hematocrit is above the normal of 45, 50 cc. of plasma should be administered. Subsequent plasma should be injected on the basis of the surface area formula in order to anticipate the continued loss.

Plasma is more economically used, according to Rhoads,¹⁸ if some degree of hemoconcentration is allowed. In the patient with a burn of small area an excess of plasma will do no harm unless there is a concomitant pulmonary injury.¹⁴ In the extensively burned patient, sparing use is advisable in order to avoid overburdening the body with plasma protein during the period of edema resorption.

Repeated hematocrit readings should be made in order to judge the success of the plasma therapy. Although the size of the surface area burned is the safest guide, the portion of the body affected and the depth of the burn must be taken into consideration.¹⁴

All figures quoted are for an adult of average size and should be adjusted for children or for small or large adults.

Blood bank and reconstituted plasma are equally good in the treatment of shock from the point of view of protein replacement. Reconstituted plasma unfortunately contains merthiolate as a preservative and, if more than 8 units is needed, blood bank plasma should be used in order to avoid mercurial damage to the kidneys.

Besides giving the calculated amount of undiluted plasma, saline solution to complete the replenishment of the plasma volume, water for kidney function and food for metabolism must be given. The foods required are described in the last section of this paper. The

volume of saline solution required is equal to that of the plasma injected intravenously. The saline solution must be given subcutaneously if it cannot be taken by mouth, otherwise dehydration and salt depletion will take place. If the patient is given nothing but isotonic electrolyte solution, the kidney is forced to concentrate the urine beyond normal. Water is needed, and 1,500 cc. should be given in the first twenty-four hours and 1,000 cc. in the second twenty-four hours. If the patient is thirsty on this quantity of water, it is judged that an insufficient volume of saline solution has been given. During the period of resorption of edema fluid, water should be given moderately and cautiously.¹⁸

All of the requirements, other than plasma protein, should be given by mouth when the patient is not nauseated or burned in the pharynx. The entire intestinal tract can act as a reservoir storing water, electrolyte and foods until the extracellular fluid or kidney needs them. When dehydration exists, water and the appropriate electrolytes are absorbed; the reservoir is able to hold nonprotein nitrogen, phosphate and potassium which have piled up in excessive concentrations in interstitial fluid and plasma. If the patient is normally hydrated a moderate excess of intake does no harm, since the reservoir increases its capacity. This capacity is not unlimited, however, and a large excess of fluid is to be avoided, particularly during the period of edema resorption.

If plasma either in the frozen blood bank or in the dehydrated form is not available for the treatment of burn shock, there are substitutes in other forms of blood, colloid or electrolyte solutions. The two substitutes for plasma derived from blood are whole blood itself and albumin concentrate, and these rank as second choice. They have different advantages; they are best used in combination and with saline solution. Whole blood supplies complete plasma. It has the disadvantage of adding cells and is therefore less effective in reducing hemoconcentration. When a large volume of plasma has to be replaced, a corresponding excess of red cells will be added to the circulation. This will mean an increase in blood volume. It is not known how many of these extra red cells the spleen is able to remove. The number of whole blood transfusions, therefore, that can be given in the early hours after a burn and during the period of maximum plasma loss should probably be limited to 5 pints for the adult of average size.

The administration of albumin concentrate,¹⁹ like that of plasma, is not accompanied by the formation of an excessive cell volume. Replenishment of the plasma ensues, but there is a distortion of the protein balance of the plasma since the single protein, albumin, is replacing both albumin and globulin.

The combination of whole blood and albumin concentrate in equal volumes of plasma equivalent is better than either alone. Fifty cc. of the 25 per cent solution of albumin diluted to 250 cc. with isotonic solution of sodium chloride is the osmotic or plasma equivalent of 500 cc. of whole blood. With the blood and albumin solution, an equal volume of saline solution should be given by mouth.

18. D. W. Richards Jr. (personal communication) has obtained evidence of increased plasma volume and venous pressure in addition to signs of pulmonary congestion between the third and fifth days after the burn in patients who have received large quantities of parenteral fluid therapy beyond the third day. Two patients died; in the treatment of 2 other patients parenteral fluids were discontinued, diuresis occurred and the patients recovered.

19. Heyl, J. T.; Gibson, J. G., 2d, and Janeway, C. A.: Studies on the Plasma Proteins: V. The Effect of Concentrated Solutions of Human and Bovine Serum Albumin on Blood Volume After Acute Blood Loss in Man. *J. Clin. Investigation* 22: 763-773 (Nov.) 1943. The human and bovine plasma albumin concentrates are not yet commercially available.

16. National Research Council Conference on Burns, Jan. 7, 1942.

17. Harkins, H. N.; Lam, C. R., and Romence, H.: Plasma Therapy in Severe Burns, *Surg., Gynec. & Obst.* 75: 410-420 (Oct.) 1942.

The noncolloid solutions, water, salt and dextrose, in large volumes have made possible the survival of many severely burned patients.²⁰ When no colloid solution is available, any one or a combination of noncolloid solutions should be given freely. A noncolloid solution is able to relieve dehydration by rebuilding the plasma volume and filling the extended interstitial space (fig. 2). With the improvement in the circulation the rate of edema formation, however, is accelerated because the proteins of the plasma are diluted. The acceleration is not as deleterious as would be expected, since it is compensated for by a decrease in the protein concentration of the edema fluid.²¹

Each noncolloid solution has its own peculiar effect beyond its dilution of plasma protein. Water fills the enlarged extracellular fluid reservoir but dilutes the electrolytes (fig. 2, diagram C). (Water as a substitute for plasma in the treatment of burn shock must be differentiated from that given in addition to plasma-saline therapy to maintain kidney function.) The dilution of calcium, magnesium, phosphate and potassium is readily compensated for because there is a store of these electrolytes within the cells. There is no storehouse for sodium and chloride, and in an extensively burned patient given water the levels will be dangerously low.

It is erroneous in the therapy of burn shock to urge the patient being treated to drink water freely with the idea that it will take the place of plasma and saline solution. Even if the patient is given plasma intravenously, a large intake of water without salt may result in electrolyte dilution. The following case illustrates such dilution:

A woman aged 29 entered the hospital with second and third degree flame burns of the entire face, head, neck, arms, shoulders and back and the sternal portion of the chest (34 per cent in total). She was given 750 cc. of blood bank plasma plus 750 cc. of isotonic solution of sodium chloride intravenously in the first twelve hours, in spite of which her hematocrit reading rose to 71 per cent. She was given a similar quantity of plasma and saline solution intravenously in the second twelve hours. Throughout this period she imbibed 4,500 cc. of water without salt. At the end of twenty-four hours her hematocrit reading had dropped only to 59 per cent but her plasma already showed dilution. On entry, one hour after the burn, the plasma protein was 7.4 Gm., total base 154 milliequivalents per liter and chloride 103 milliequivalents per liter, all within the normal range. Twenty-four hours later the values were respectively 6.2 Gm., 140 milliequivalents per liter and 87 milliequivalents per liter. The protein is still within the normal range but the electrolytes have been diluted to below normal. The required sodium and chloride were not given, so that the total base remained low at 140 for the next ten days. The sodium on the fourth day was 131 milliequivalents per liter and on the sixth was 114 milliequivalents per liter; the chloride slowly fell, so that on the eleventh day it was only 77 milliequivalents per liter. This continued dilution was presumably influenced by the fact that the burns became infected and some edema of the wounds persisted. Finally on the eleventh day a blood transfusion and isotonic solution of sodium chloride were given intravenously. There was a spontaneous remission of the infectious process and the electrolyte pattern returned to normal. This patient received inadequate therapy both of protein and of electrolyte, but particularly of the latter. With the development of dehydration and thirst, the patient filled with water the extracellular reservoir enlarged by the extensive wounds. Sodium and chloride should have been added to the fluids she drank.

The defect of salt dilution from treating with water is remedied by giving salt solution (fig. 2, diagram D).

Dextrose is not an effective colloid. It is, however, an important metabolite and should be added to the saline solution or water. The eventual distribution of electrolytes and protein will depend on the solution in which it is given.

Isotonic sodium lactate is recommended by Fox²² for the treatment of burn shock. Such therapy recog-

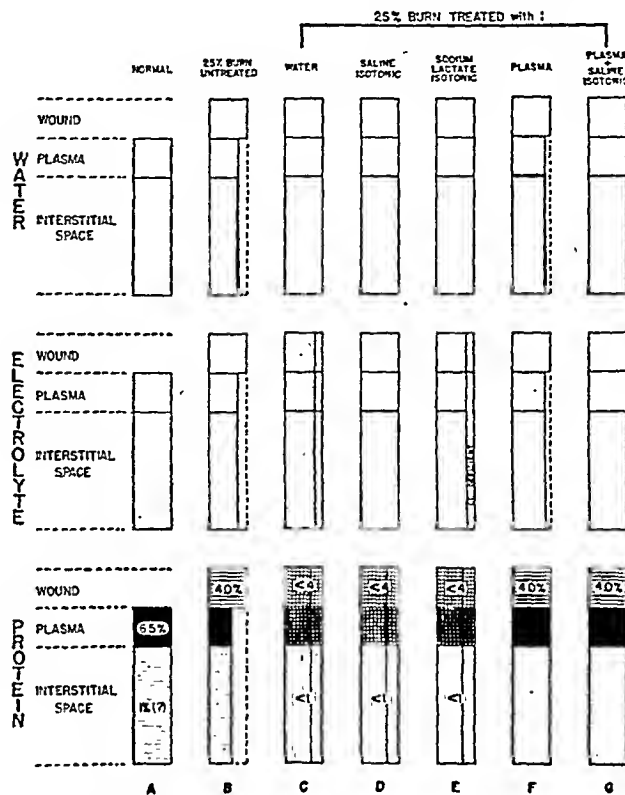


Fig. 2.—Hypothetic distribution of extracellular water, electrolyte and protein in the burned patient. The figures depict no single patient, but are a composite of the data of many patients and experimental observations. The diagrams are based on the assumption that 25 per cent of the body surface is burned. The calculations of Elkinton, Wolff and Lee (*Plasma Transfusion in the Treatment of the Fluid Shift in Severe Burns*, *Ann. Surg.* 112: 150 [July] 1940) suggest that similar changes are produced by a burn of less extent. The diagrams are drawn with the supposition that nothing is lost from the wound or kidneys, that nothing is withdrawn from the intracellular space and that the optimal amount of therapy is given in each instance. As the wound swells with edema, the body's capacity for water, electrolyte and plasma protein expands. Degrees of shading under electrolyte and protein indicate different concentrations. Diagram A, distribution of extracellular water, electrolyte and protein between blood plasma and interstitial space in the normal. The plasma volume approximates 25 per cent of the extracellular fluid. The average concentration of protein of the interstitial fluid is estimated as 1 per cent; it has not been measured in the human being. Diagram B, effect of the burn, untreated. As plasma leaks into the wound, both the plasma and interstitial fluid volume of the unburned tissues are diminished. The capacity of the interstitial space created in the wound in this hypothetical case is equal to the normal plasma volume. The edema fluid is drawn as having a protein concentration of 4.0 per cent. Diagram C, effect of treating the burned patient with water. The entire fluid reservoir, the vascular system, the unburned interstitial space and the wound, is filled. The concentrations of electrolyte and protein are reduced throughout. Diagram D, effect of treating with isotonic solution of sodium chloride. The entire reservoir is filled with water and there is an approximately normal concentration of electrolyte. The concentration of sodium is normal, that of the chloride above normal. Protein concentration is reduced. Diagram E, effect of isotonic sodium lactate solution. The reservoir is filled. The concentration of sodium is physiologic. The concentrations of chloride and protein are reduced. Diagram F, the effect of returning to the circulation in the form of plasma that quantity of protein which has been lost into the burn wound. There is a deficiency of both water and electrolyte in the reservoir. Only half of the deficiency of both water and electrolyte has been met by the plasma. Diagram G, the result of combined plasma and saline therapy. The reservoir is filled with fluid. The concentrations of electrolyte and protein in the plasma and unburned tissue space are normal.

nizes the benefit to be derived from giving an adequate amount of water and sodium. It does not take into account the loss of plasma protein into the burn

20. Commercially available amino acid solutions which are useful in nutritional failure late in burns should not be used as an electrolyte substitute in burn shock, since in shock there is already an accumulation of unmetabolized amino acids. As far as the author is aware their effect has not been weighed in experimental burn shock.

21. Harkins (personal communication) and the author believe that acceleration of edema formation occurs but it is admittedly difficult to prove clinically. In the experimental animal adequate control is possible, and it has been demonstrated (unpublished data from this laboratory).

22. Fox, C. L., Jr.: *Oral Sodium Lactate in the Treatment of Burn Shock*, *J. A. M. A.* 124: 207-212 (Jan. 22) 1944.

wound on which the circulation is dependent for its colloid osmotic and effective circulating pressure. Fox's patient W. R. had a systolic blood pressure of 70 mm. of mercury, a reading consistent with shock, for eight hours after the onset of sodium lactate therapy. The patient also had a plasma protein level of 4.2 Gm. at thirty-six hours after the burn, a level consistent with extreme plasma dilution.

The chloride deficiency which is concomitant with that of sodium is also not remedied by calcium lactate therapy. As could have been anticipated, the chloride level of Fox's patient descended to 77 milliequivalents per liter at thirty-six hours. It is true that chloride deficiency will be only two thirds that of sodium and that the administration of sodium as sodium chloride solution introduces an excess of chloride. Nevertheless it is probably wiser to give the excess of chloride than none at all. It is still to be proved that lactic acid is the physiologic equivalent of chloride in meeting the chloride deficiency. It is understood that all of the chloride given as therapy will have to be excreted by the kidney when the edema of the burn wound is resorbed, but so will the 50 per cent of the lactic acid which cannot be metabolized. The entire amount of sodium given will also have to be excreted, and there is no evidence that the kidney can excrete sodium lactate more easily than sodium chloride. Another acid, phosphate, ketone or carbonate, will have to be mobilized to balance the sodium relinquished by the lactate which is metabolized.

Sodium lactate solution should effectively combat the acidosis of late shock and promote the excretion of hemoglobin by the kidney. Half of the lactic acid is metabolized, freeing the sodium to neutralize the acidosis and also to alkalize the urine.

Solutions of three nonbiologic colloids, acacia, pectin and gelatin, have been introduced as plasma substitutes for the treatment of burn shock. Body cells retain acacia for many years, and damage from its inclusion is not excluded. Pectin²³ and gelatin²⁴ solutions satisfactorily restore the osmotic tension lost through plasma leakage. Neither of these two colloid solutions has had adequate clinical trial; both may prove easier to eliminate than plasma protein during the period of edema resorption, in which case their use would be preferable in the extensively burned patient.

Correction of Abnormal Metabolism Induced by Shock.—Prolonged low blood pressure shock with its inadequate supply of oxygen to tissues results in the collection of products of abnormal metabolism. There will be a rise in nonprotein nitrogen, including amino acid, and an electrolyte acidosis induced by an excess of fixed acids, ketone, lactic and pyruvic. The cessation of kidney function increases the concentration of these abnormal metabolites. Solutions containing the sodium ion are indicated for the immediate relief of the acidosis. This will result in a total excess of sodium ion within the body which must eventually be excreted. The amino acids will be metabolized when shock has been relieved and aerobic conditions exist in the liver. Above all, fluid is needed for kidney function. It is believed that the sodium ion given as sodium bicarbonate will promote kidney function in the presence of acidosis. Dex-

trose intravenously is also helpful in initiating a resumption of kidney function, but again the prime consideration is the relief of shock and the return of an adequate blood flow to the kidney. It is held that vitamin B, particularly thiamine, should be given in shock, since the B group of vitamins are rapidly dissipated and since they are a requisite for the normal carbohydrate metabolism of cells.

CONTROL OF INFECTION

It is to be assumed that all burn wounds are contaminated and therefore may become infected. Immediate covering of the wound and prophylactic chemotherapy are indicated. Since the organisms infecting a burn arrive as contaminants on the wound surface, it is imperative to protect the wound at once by applying an impervious dressing.⁹ Chemotherapy, either by mouth or intravenously, is indicated for all burn patients except those with first degree or other burns of small extent in which the epidermis is intact. It may be withheld in a second degree burn in which it is anticipated that the blisters will not rupture.

No one or a combination of chemotherapeutic agents attack all the types of organisms known to infect burn wounds. Penicillin promises more than the sulfonamides, since it controls the staphylococcus as well as the organisms susceptible to sulfonamides. It is hoped that this drug will soon be available in greater quantities. In the meantime, sulfadiazine is the drug of choice. In severely burned patients with ruptured epidermis, the drug should be started early by the intravenous injection of 2.5 Gm. of the sodium salt. Subsequent doses should be given either intravenously or by mouth in quantities adequate to maintain a blood level above 6 mg. per hundred cubic centimeters and below 12 mg. per hundred cubic centimeters. It is probable that sodium bicarbonate or citrate should be concomitantly administered by mouth. Such chemotherapy should be continued until the wound is covered with epidermis firm enough to bar the entrance of organisms. If signs of a toxic reaction to sulfadiazine appear, the drug should be promptly omitted.

Many of the ointments currently recommended for the treatment of burns contain sulfonamides. The drug is absorbed from such preparations, and, if the ointment is applied over an extensive area, toxic levels may be reached.⁸ It is easier to control the level of the drug by internal administration alone, and the drug permeates the wound in effective concentrations.

Chemotherapeutic agents other than sulfonamides and penicillin, such as the gentian violet and triple dyes, have been recommended for local use on burn wounds. These dyes at bacteriostatic concentrations are toxic to tissues and therefore delay wound healing.²⁵

If prophylactic chemotherapy was not instituted and the burn is already infected when first seen, chemotherapy is indicated together with the general surgical procedures used for established infection.

Specific immune therapy may be indicated for tetanus and streptococcal infections. A small percentage of burned patients develop tetanus. All patients with burns in which the epidermis is broken should be given a prophylactic dose of tetanus antitoxin or a booster dose of tetanus toxoid if the patient has been previously immunized. If a streptococcal infection develops in a

23. Hartman, F. W.; Schelling, V.; Harkins, H. N., and Brush, B.: Pectin Solution as a Blood Substitute, *Ann. Surg.* **114**: 212-225 (Aug.) 1941.

24. Parkins, W. M.; Koop, C. E.; Riegel, C.; Vars, H. M., and Lockwood, J. S.: Gelatin as a Plasma Substitute, with Particular Reference to Experimental Hemorrhage and Burn Shock, *Ann. Surg.* **118**: 193-214 (Aug.) 1943.

25. Cannon, B., and Cope, O.: Rate of Epithelial Regeneration: A Clinical Method of Measurement, and the Effect of Various Agents Recommended in the Treatment of Burns, *Ann. Surg.* **117**: 85-92 (Jan.) 1943.

patient sensitive to sulfonamides and for whom penicillin is not available, immunotransfusion²⁶ should be considered.

A sound physiologic state of the body and careful attention to surgical detail may decide the fight against infection. The importance of combating shock and anoxia has been mentioned. Proper nutrition and fluid balance are necessary for the elaboration of protein immune bodies and the destruction of bacterial toxins. It is impressive how immobilization of the wound by a firm splint dressing and the avoidance of contamination with new organisms by dressing the wound only in the operating room decelerates the infectious process.

PROMOTION OF WOUND HEALING

No chemical agent is known which expedites wound healing above the physiologic optimum pertaining under the state of normal nutrition and the absence of infection. Substances such as Biodyne, vitamin ointments and light filters are foisted on us under the mistaken impression that they accelerate cellular regeneration. Critical analysis does not confirm the claims. It is possible that a principle will be discovered which will enable cells to multiply at a rate above that of normal tissue. In the meantime the substance to be applied locally to wounds is one which is known to be non-injurious to tissues.

General hygienic measures must be undertaken to bring the disturbed nutritional state of the burned patient back to normal. Whole blood transfusions for anemia, a high protein high vitamin palatable diet, together with adequate sleep, relief of anxiety and proper intestinal function are the measures.

Repeated whole blood transfusions are needed in the treatment of severely burned patients with infected wounds. Infectious toxemia is accompanied by a decrease in red cell volume and oxygen carrying capacity of the blood. The blood hematocrit gives the clue to the extent. The fall in hematocrit due to the decrease in number of red cells must be differentiated from that due to the hemodilution which occurs during the period of resorption of edema fluid. Whole blood transfusions are indicated in the former condition but may be hazardous in the latter, since the plasma volume may already be increased and transfusion may precipitate pulmonary edema. In both cases the oxygen carrying capacity of the blood must be built up to permit adequate kidney function. Rigid restriction of fluid intake, rather than transfusion, is indicated in the pseudo anemia of hemodilution.

There may not be an adequate supply of iron available within the body, and therapy is therefore indicated for the reconstruction of hemoglobin.

Infection results in rapid destruction of plasma protein as well as a decrease in circulating hemoglobin. A high intake of protein in the diet is therefore indicated from the beginning. The transfusions given for the anemia will augment the diet. The parenteral administration of amino acids is economical but probably not as efficient as transfusions.

SUMMARY

The chemical treatment of burns encompasses shock, its prevention and metabolic consequences, the control of infection, the promotion of wound healing and the maintenance of nutrition. The rationale for the therapy of each is dependent on a knowledge of the pathologic physiology of the burn wound.

The wound enlarges the body's reservoir for water, electrolyte and protein. All three should be given in the treatment of shock and in amounts sufficient to restore their normal concentrations. When water only is given, the electrolyte and protein in the plasma and interstitial space become dilute, but water alone is better than no treatment at all. Water and salt will fill the reservoir, but only when plasma protein is given in conjunction does the plasma volume possess an adequate colloid osmotic pressure.

Even more favorable results than those obtained with sulfadiazine in the control of infection are to be anticipated from the prophylactic use of penicillin.

No substance is known which expedites the healing of the wound above that obtained under conditions of normal nutrition and absence of infection. The optimal care of the burn surface consists in covering it promptly with a dressing impervious to bacteria and one which contains nothing injurious to cells.

THE GENERAL CARE OF THE BURNED PATIENT

CONRAD R. LAM, M.D.

DETROIT

It is easier to write an article on the general treatment of a patient with burns now than it was two or three years ago. Much controversial matter appears to have been settled, and certain previously recommended procedures can be omitted or will be mentioned only to be condemned. There has been a healthy change in the attitude of surgeons toward thermal injury; the trend has been toward simplification and uniformity, with the burn being regarded as a wound which will react favorably to many of the fundamental surgical methods which are commonly used in other kinds of trauma.¹ If this point of view in local treatment is extended to include general care, one may consider that the burned patient differs in only a few respects from patients with other surgical conditions, and this difference is one of degree only. I wish to stress especially that the care of burns has become vastly easier since the abandonment of tanning methods and the adoption of the large occlusive dressings described elsewhere in this symposium. For example, the stage of liver insufficiency and "toxemia" which so often ended with death on the third to the fifth day is unknown in nontanned patients.

General treatment will be considered under the following headings: (1) management of shock and certain shocklike symptoms, (2) nutrition and fluid balance, (3) general measures to combat infection and (4) nursing care.

SHOCK AND SHOCKLIKE SYMPTOMS

The term "burn shock" has been used extensively, and this may have led to an erroneous conception in the minds of some that there is a special kind of shock in burns which should respond to specific treatment in the form of the injection of this or that drug parenterally. The number of recommended substances and

From the Division of General Surgery of the Henry Ford Hospital. This paper, in a symposium on "The Treatment of Burns," is published under the auspices of the Section on Surgery, General and Abdominal. Many of the conclusions and the 2 case reports are based on work done in conjunction with Roy D. McClure and under a contract recommended by the Committee on Medical Research between the Office of Scientific Research and Development and the Henry Ford Hospital. 1. McClure, R. D.: The Modern Treatment of Burns, Surg., Gynec. & Obst. 66:1064 (June) 1938. Whipple, A. O.: Basic Principles in the Treatment of Thermal Burns, Ann. Surg. 118:147 (Aug.) 1947.

26. Lyons, C.: Immunotransfusion and Antitoxin Therapy in Hemolytic Streptococcus Infections, J. A. M. A. 103:1972-1975 (Dec. 14) 1935.

the enthusiasm of the investigators who work with them has been augmented by two conditions: (1) the apparent inclination of experimental animals, especially rats, to fare statistically better than controls when treated with any method which is being tested and (2) the stubborn tendency to recover in all cases in man, regardless of the type of treatment. The burned patient may show some symptoms commonly referred to as "shock," but it is unnecessary to look for some hypothetical substance, e. g. a histaminoid, to explain them. Probably the cause can be found in the simple outline given in the accompanying table, which was suggested by Norman E. Freeman and published by Lee.² I have changed the order of the items to conform to the sequence in which they should be considered for burns and have added the item of plasma loss.

This outline might be consulted with profit in the symptomatic treatment of the patient with acute burns. Pain is first on the list and justly so. It is the duty of the medical attendant to relieve this symptom adequately and rapidly. Morphine remains the drug of choice. There is some evidence that an excessively large dose may not alleviate pain more than a moderate one, while the former carries with it the danger of respiratory depression. Above all, it is essential that one does not try to treat restlessness or mania due to anoxia with morphine. Beecher³ emphasized this point

Causes and Treatment of "Shock"

Cause	Treatment
Pain.....	Morphine
Fear.....	Reassurance
Cold.....	Warmth
Asphyxia.....	Oxygen
Exhaustion.....	Rest
Dehydration.....	Fluid
Plasma loss (as in burns).....	Plasma
Hemorrhage.....	Transfusion

in his account of the management of the Boston Coconut Grove victims at the Massachusetts General Hospital. Injury to the respiratory tract was common and serious, and it was felt that excessive doses of morphine had been detrimental in several cases. The following instructive case was recently observed in the Henry Ford Hospital:

N. K., a boy aged 12 years, was sleeping in a tent during a camping expedition. At 4 a. m. the fire which was necessary on account of the extremely cold weather spread to his bedding, and he received deep second degree burns of the face and hands. He was admitted the next morning, and petrolatum dressings were applied to the burned areas. It was noted that he was hoarse, a condition which was tentatively attributed to a cold. During the ensuing night considerable dyspnea and stridor developed, and the next morning an oxygen tent was placed over him. There was no relief of the dyspnea, nor was any benefit derived from mask inhalations of an oxygen-helium mixture (25-75). At noon on the second day the patient had become irrational and was thrashing wildly about his bed. A house officer suggested morphine for the extreme restlessness. Fortunately this suggestion was not followed, but, instead, tracheotomy was carried out. This relieved the dyspnea completely; the boy became rational immediately and lay quietly in bed. Henceforth his recovery was uneventful.

It was obvious that serious burns of the respiratory tract did not extend below the glottis. This experience would suggest that tracheotomy should not be withheld

from any patient with signs of dangerous oxygen lack which is due to burns of the air passages.

The intravenous route for morphine should not be forgotten, since, as Beecher has pointed out, there may be poor absorption from the subcutaneous tissues or muscles in severely injured patients with depressed peripheral circulation. For this route smaller doses are used ($\frac{1}{8}$ to $\frac{1}{6}$ grain, or 0.008 to 0.011 Gm.). For sedatives in the treatment of fear and hysteria, repeated doses of barbiturates intravenously are useful, e. g. sodium pentobarbital (nembutal) in 90 mg. ($\frac{1}{2}$ grain) doses.

A burned patient may be chilled, owing to exposure in inadequate clothing or having been drenched with cold water. Such a patient will show some signs of shock due to cold, and for him external heat in moderation is indicated. But beyond this heat plays no useful part in burn therapy. The patient should be kept in a comfortable environment, with the temperature of the room preferably not more than 75 F. The so-called "burn tent" with the battery of electric lights is rapidly passing from our hospitals. The cold extremities of the patient in true shock from burns or other trauma appear to be the result of a compensatory phenomenon to conserve blood volume for the vital centers. Efforts to produce vasodilatation and thereby warm up such extremities may do serious harm.⁴ Experimentally, the survival rate of burned rats was notably affected by environmental temperature.⁵

The extraordinary amount of soft tissue injury in an extensive burn results in a condition which gives "burn shock" its only claim to individuality. I refer to the loss of plasma from the vascular tree which produces hemoconcentration as indicated by high hematocrit, hemoglobin and erythrocyte count values. Several complicated formulas have been suggested for estimating the plasma deficit. I have found the formula of Harkins⁶ useful. This states that, for every point the hematocrit is above the normal of 45, 100 cc. of plasma should be given. This would apply to an average adult weighing 150 pounds (68 Kg.), and proportionally less would be given to children. Harkins also suggested a simple first aid rule, which is that 50 cc. of plasma should be given for each per cent of the body surface which is burned. This could be expressed as a pint of plasma for each 10 per cent of body surface. The latter rule was utilized with satisfaction by Cope and his associates⁷ in the treatment of the Coconut Grove casualties at the Massachusetts General Hospital.

The following case shows how plasma was employed with a patient with moderately severe burns:

E. S., a boy aged 16 years, was burned on April 21, 1942 when his oil soaked trousers caught fire. He sustained second degree burns of an area estimated as 22 per cent of the body surface (fig. 1). A hematocrit reading of 55 was obtained (fig. 2). Since this was 10 points above normal, it was estimated by Harkins' formula that 10×100 cc., or 1 liter, was necessary to correct the hemoconcentration. Actually he received 900 cc., which brought the hematocrit to normal. It should be noted that a part of the hemoconcentration was due to simple dehydration, as indicated by the high plasma protein value (8 Gm. per hundred cubic centimeters).

4. Blalock, A., and Mason, M. F.: A Comparison of the Effects of Heat and Those of Cold in the Prevention and Treatment of Shock. *Arch. Surg.* 42:1054 (June) 1941.
5. Elman, R.; Cox, W. A.; Lischer, C., and Mueller, A. J.: Mortality in Severe Experimental Burns as Affected by Environmental Temperature. *Proc. Soc. Exper. Biol. & Med.* 51:350 (Dec.) 1942.
6. Harkins, H. N.; Lam, C. R., and Remence, H.: Plasma Therapy in Severe Burns. *Surg., Gynec. & Obst.* 75:410 (Oct.) 1942.
7. Cope, O., and Rhinclander, F. W.: The Problem of Burn Shock Complicated by Pulmonary Damage. *Ann. Surg.* 117:915 (June) 1943.

2. Lee, W. E.: The General Surgeon's Approach to the Problems Presented by Fractures and Other Traumas. *Surg., Gynec. & Obst.* 74:514 (Feb.) 1942.
3. Beecher, H. K.: Resuscitation and Sedation of Patients with Burns Which Include the Airway. *Ann. Surg.* 117:825 (June) 1943.

In summary it may be stated that the shock factor in the patient with acute burns is treated by relieving pain with the proper analgesic, alleviating the symptoms of fear, cold and exhaustion by appropriate measures, and restoring blood volume when necessary by plasma infusion. It will be noted that adrenal cortex extract,

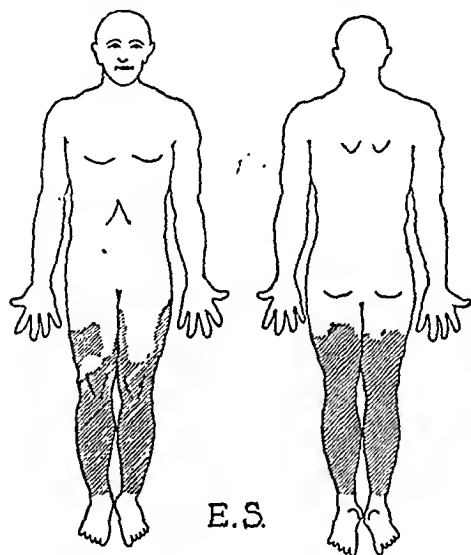


Fig. 1.—Burned areas of E. S. Approximately 22 per cent of body surface burned.

desoxycorticosterone acetate and similar preparations have not been recommended for reasons discussed at length elsewhere.⁸

NUTRITION AND FLUID BALANCE

With the patient with a moderate burn who is in the hospital about two weeks, there is no problem of nutrition. The order might read "Diet as tolerated." However, if there are large areas of third degree burn, the convalescence is inevitably complicated by more or less sepsis and multiple skin grafting operations under general anesthesia. There is loss of appetite at a time when a larger food intake is needed. There is loss of body proteins by necrosis and exudation, increased nitrogen excretion in the urine and increased metabolism due to fever. Therefore it becomes necessary to give maximum quantities of food by mouth, and frequently this must be supplemented by intravenous alimentation.

Special studies of a number of Coconut Grove victims were carried out at the Boston City Hospital.⁹ Most of the patients responded to diets of 3,000 calories, of which 100 to 125 Gm. was protein. One seriously burned patient became edematous with a very low plasma protein level, and it was only by heroic feeding methods that the deficit was corrected. A maximum daily intake of 500 Gm. of protein was obtained by feeding a high caloric, high protein, high vitamin diet by stomach tube and giving intravenous amino acids, plasma and human albumin. The intubated food was supplemented by 30 to 40 Gm. of brewers' yeast, 20,000 units of vitamin A, 100 units of vitamin D, 200 mg. of ascorbic acid, 20 mg. or riboflavin and 200 mg. of nicotinamide daily.

For preventing and correcting dehydration, one may follow one of the usual clinical rules which have been

applied to other conditions.¹⁰ Sufficient fluids should be given by mouth to obtain a urinary output of 1,000 cc. daily as soon as possible. If vomiting occurs, intravenous solutions are given. It should be remembered that an excess of salt may be given with large amounts of isotonic solution of sodium chloride; 5 per cent dextrose is an alternative.¹¹

GENERAL MEASURES TO COMBAT INFECTION

It is almost axiomatic that measures to promote the general well being of the patient, such as maintenance of adequate nutrition, correction of anemia by transfusion and the prevention of shock, will decrease the likelihood and seriousness of infection. There has been widespread hope that chemotherapy with the sulfonamides would reduce the incidence of infection. With this in mind the Coconut Grove patients at the Massachusetts General Hospital were given sulfadiazine.¹² It was found that the blister fluid of these patients contained bacteriostatic amounts of the drug. Infection was not a serious complication in these cases, but there was no control series. On the other hand, Meleney's¹³ report of the cases studied by a number of National Research Council projects indicated that the incidence of infection in burns was not affected by sulfonamide therapy. Of 141 patients treated with general sulfadiazine, 31.2 per cent became seriously infected and 19.9 per cent were trivially infected, a total incidence of 51.1 per cent! Of the patients not treated with the drug, 10.4 per cent were seriously infected and 24.9 trivially infected, a total of only 35.3 per cent. It was concluded that the use of the sulfonamides did not lessen the incidence of local infection.

Naturally, there is hope at the present time that penicillin will be useful in preventing and treating the stage of sepsis in burns. No statistically significant figures are available at the time of the writing of this paper. I have treated 3 patients with penicillin, with gratifying results in 2. These patients had extensive third degree burns, and some of the later stages of skin grafting were entirely unsuccessful on account of infection.

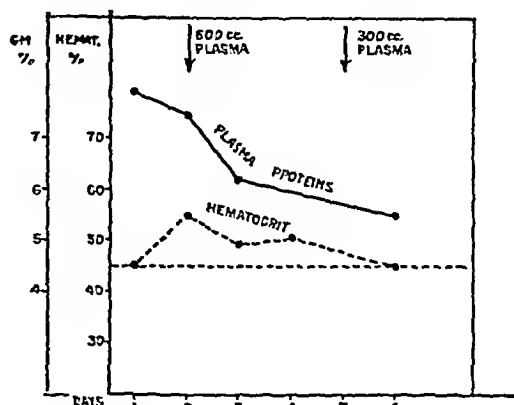


Fig. 2.—Effect of plasma therapy on the hemoconcentration resulting from burns (patient E. S.).

Subsequently there was a good take of the grafts when they were kept moist with small packs wet with penicillin solution (100 units per cubic centimeter) and

8. McClure, R. D., and Lam, C. R.: The Shock Factor in Burns and Its Treatment, *Univ. Hosp. Bull., Ann Arbor* 9: 62 (July) 1943.
9. Taylor, F. H. L.; Levenson, S. M.; Davidson, C. S.; Browder, N. C., and Lund, C. C.: Problems of Protein Nutrition in Burned Patients, *Ann. Surg.* 118: 215 (Aug.) 1943.

10. Maddock, W. G., and Collier, F. A.: Water Balance in Surgery, *J. A. M. A.* 108: 1 (Jan. 2) 1937.
11. Lam, C. R.: The Chemical Pathology of Burns: A Collective Review, *Surg., Gynec. & Obst.* 72: 320 (April) 1941.
12. Cope, G. L.: The Treatment of the Surface Burns, *Ann. Surg.* 117: 885 (June) 1943.
13. Meleney, F. L.: The Study of the Prevention of Infection in Contaminated Accidental Wounds, Compound Fractures and Burns, *Ann. Surg.* 118: 171 (Aug.) 1943.

the patients were given 100,000 units daily by the intramuscular route (12,500 units every three hours). The third patient died from staphylococcic septicemia after three weeks. He received what is now believed to be inadequate penicillin treatment, i. e. 40,000 units daily and no local packs.

NURSING CARE

Space does not permit an adequate coverage of this phase of burn treatment. The seriously burned patient needs the services of a special nurse who is patient, watchful and sympathetic and who preferably has had previous burn case experience. The exigencies of warfare, civil disaster and economic status will often preclude such care. Important items in nursing care are (1) providing comfort by the administration of medications, adjusting the room temperature and doing a hundred little things, such as applying cold cream to parched lips, (2) extending and reinforcing dressings, (3) providing and forcing fluids and food as outlined, (4) giving scrupulous attention to "pressure areas" to prevent decubitus ulcers and (5) serving constantly as a physical therapist, encouraging motion of all possible joints in order that when the skin is healed there shall be no disability from lame shoulders, knee contractures, foot drops and claw hands.

The adequate general care of the burned patient demands much from the hospital personnel, including doctors, nurses and orderlies. However, the reward of seeing such a patient recover and return to normal life is ample.

EDITORIAL NOTE.—This paper and the two papers by Drs. Harkins and Cope, which precede it, together with the four papers by Drs. Lee and Rhoads, Koch, Gurd and Gerrie and Davis, to appear next week, constitute a symposium on the treatment of burns.

STUDIES ON PROTHROMBIN

VI. THE EFFECT OF SYNTHETIC VITAMIN K ON THE PROTHROMBINOPENIA INDUCED BY SALICYLATE IN MAN

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In their studies on the causative agent of the hemorrhagic sweet clover disease, dicumarol, 3-3'-methylenebis-(4-hydroxycoumarin), Link and his students found that the prothrombinopenia inducing agent is active in vivo only and that a latent period exists before the prothrombinopenia becomes detectable. These facts led to the thesis that the delayed action occurs, at least in part, because the methylene bis-coumarin must first be metabolized in the body to a derivative which is, or from which is liberated, the effective agent. The quantitative degradation of dicumarol to 2 mols of salicylic acid prompted the agricultural chemists to study the action of salicylic acid on the prothrombin level (or activity) of the blood. They demonstrated in rats that salicylic acid can induce prothrombinopenia and that such prothrombinopenia can be prevented by vitamin K.¹

Following this, investigations conducted by Meyer and Howard² and by Shapiro, Redish and Campbell³ established that the fundamental observations made on the rat apply to man also.

The possible clinical significance of the prothrombinopenia inducing action of salicylate as a cause of hemorrhage has recently been brought to light by English clinicians.⁴ As was implied by Link,¹ they point out that vitamin K might be used prophylactically for patients receiving salicylates in large and continued doses. It has been possible to prevent the prothrombinopenia induced by 6 Gm. of acetylsalicylic acid given for one day by the intramuscular administration of 1 mg. of synthetic vitamin K.³ My purpose in the present communication is to report the results of studies on the protective action of synthetic vitamin K against the prothrombinopenia produced by the more continued use of salicylate.

MATERIAL

Seventeen adults varying in ages between 22 and 76 were studied. In most of the instances the salicylate was used for therapeutic purposes. In addition to cases of chronic arthritis there were included in the group 3 cases of acute rheumatic endocarditis and 1 case of sickle cell disease.⁵ In each subject the nutritional state was satisfactory and the food intake was adequate. The prothrombin time was normal during the control period in every case.

METHOD OF PROTHROMBIN ASSAY

The procedure used to estimate the prothrombin level (or activity) is based on the method of Quick⁶ and includes estimation of the prothrombin time of whole and diluted (12.5 per cent) plasma. The rationale and clinical and experimental applications have been described in previous communications.⁷ The greater sensitivity of the prothrombin time of 12.5 per cent plasma over that of whole plasma has been demonstrated also.

The thromboplastin used was prepared from fresh rabbit lung. All estimations were done in duplicate. The established normal standard for 12.5 per cent plasma was 39.5 seconds (standard deviation ± 2.5). Plasma was obtained by the addition of 4.5 cc. of venous blood to 0.5 cc. of $\frac{1}{10}$ molar sodium oxalate and centrifugation.

PROCEDURE

The salicylate and the synthetic vitamin K were given orally in three or four equally divided doses except where otherwise designated. Several estimations of the prothrombin time were executed during the

2. Meyer, O. O., and Howard, B.: Production of Hypoprothrombinemia and Hypocoagulability of the Blood with Salicylates, *Proc. Soc. Exper. Biol. & Med.* **53**: 234, 1943.

3. Shapiro, S.; Redish, M. H., and Campbell, H. A.: Studies on Prothrombin: IV. The Prothrombinopenic Effect of Salicylate in Man, *Proc. Soc. Exper. Biol. & Med.* **53**: 251, 1943.

4. Salicylates and Hemorrhage, *Annotations, Lancet* **2**: 419, 1943.

5. Murphy, R. C., Jr., and Shapiro, S.: Sickle Cell Anemia: 1. Observations on the Behavior of the Erythrocyte in Sickle Cell Disease; Description of an Improved Technique for Studying the Red Blood Cells, *Arch. Int. Med.*, to be published.

6. Quick, A. J.; Stanley-Brown, M., and Bancroft, F. W.: Study of the Coagulation Defect in Hemophilia and Jaundice, *Am. J. M. Sc.* **190**: 501, 1935.

7. Shapiro, S.; Sherwin, B.; Redish, M., and Campbell, H. A.: Prothrombin Estimation: A Procedure and Clinical Interpretations, *Proc. Soc. Exper. Biol. & Med.* **50**: 85, 1942. Shapiro, S.; Sherwin, B., and Gordiner, H.: Postoperative Thromboembolization, *Ann. Surg.* **116**: 175, 1942. Shapiro, S., and Sherwin, B.: Studies in Thromboembolization: II. Observations on the Use of Dicumarol (3-3'-Methylenebis-[4-Hydroxycoumarin]) in Embolization; Report of Five Cases, *New York State J. Med.* **43**: 45, 1943. Shapiro, S.; Redish, M. H., and Campbell, H. A.: Studies on Prothrombin: 11. The Effects of a Single Small Dose of Dicumarol (3-3'-Methylenebis-[4-Hydroxycoumarin]) in Liver Disease, *Am. J. M. Sc.* **205**: 808, 1943; Prothrombin Studies: III. Effect of Vitamin K on Hypoprothrombinemia Induced by Dicumarol in Man, *Proc. Soc. Exper. Biol. & Med.* **52**: 12, 1943. Flood, E. P.; Redish, M. H.; Bociek, S. J., and Shapiro, S.: Thrombophlebitis Migrans Disseminata, *New York State J. Med.* **43**: 1121, 1943. Shapiro, Redish and Campbell.⁷

This work was done in part at the Hospital of the Home of the Daughters of Israel, New York City.

The synthetic vitamin K (Menadiolone Bisulfite) used was supplied by Dr. Samuel M. Gordon, Endo Products, Inc., Richmond Hill, N. Y.

From the Third (New York University) Division, Goldwater Memorial Hospital, Welfare Island, and the Department of Medicine, New York University College of Medicine.

1. Link, K. P.; Overman, R. S.; Sullivan, W. R.; Huebner, C. F., and Scheel, L. D.: Studies on the Hemorrhagic Sweet Clover Disease: XI. Hypoprothrombinemia in the Rat Induced by Salicylic Acid, *J. Biol. Chem.* **147**: 463, 1943.

control period before medication was commenced. Following this the prothrombin time was measured almost daily, at least five times each week. Acetylsalicylic acid was used exclusively. When the prothrombin time became prolonged the drug was discontinued until the prothrombin time returned to normal, when the medication was resumed and in addition to it menadione in the doses detailed later. Exceptions to this outline are indicated in the text.⁸

RESULTS

Sixteen subjects received 6 mg. of acetylsalicylic acid per day; 1 patient with acute rheumatic endocarditis, 5 Gm. daily. In 4 cases it was necessary to discontinue the medication because of intolerance to the drug. It is noteworthy that 2 of these disclosed unaltered prothrombin time after 30 Gm. of the salicylate had been ingested.

The remaining 13 subjects showed prolongation of the prothrombin time commencing the third to the fifth day after the initial dose of salicylate. Five of these received 2 mg. of menadione perorally daily. Two of the latter showed protection against the prothrombinopenia inducing action, the prothrombin time of the

Summary of Results

No. of Cases	Dose of Salicylate Daily	Extent of Prothrombinopenia After Salicylate	Dose of Menadione Daily	Number of Cases Protected by Vitamin K
5	6 Gm.	Moderate*	2 mg.	2
6	6 Gm.	Moderate	6 mg.	5
2	6 Gm.	Moderate	9 mg.	2
1†	5 Gm.	Moderate	2, 6 and 9 mg.	Partial protection after 9 mg.

* Moderate: prolongation of the 12.5 per cent prothrombin time between approximately one and one half times and plasma twice normal.
† Complete protection during period when 400 mg. daily of ascorbic acid was added (intravenously).

diluted plasma remaining within normal limits. Two days after both drugs were discontinued the prothrombin time increased spontaneously and was promptly restored to normal by a parenteral injection of 6 mg. of menadione. In the remaining 3 cases the prothrombin time became prolonged approximately the same as when salicylate alone was ingested.

Five subjects were given 6 mg. of menadione daily and showed protection against prothrombinopenia as follows: Two exhibited increased prothrombin time after receiving salicylate for only two days and showed normal prothrombin time when synthetic vitamin K was added; 3 others exhibited prothrombinopenia following the ingestion of acetylsalicylic acid for one week and normal prothrombin time after the administration of 1 mg. of menadione for each gram of the salicylate taken. In 1 of these slight prolongation of the prothrombin time was detected for two days following withdrawal of both drugs, after which it spontaneously returned to normal.

Two patients were given 1.5 mg. of menadione to each gram of acetylsalicylic acid which had previously induced prothrombinopenia. Both exhibited complete protection, the prothrombin time remaining normal. One of these also showed slightly prolonged prothrombin time after both drugs were withdrawn, similar to the experience just noted.

One patient with acute rheumatic endocarditis was observed daily for eight weeks. Evidences of rheumatic

activity including accelerated erythrocyte sedimentation rate were present during the entire period. The prothrombin time, which was normal initially, became prolonged on the second day of salicylate medication. Although the drug was withdrawn on the fifth day the prothrombin time remained increased even after the administration of 6.5 mg. of synthetic vitamin K for

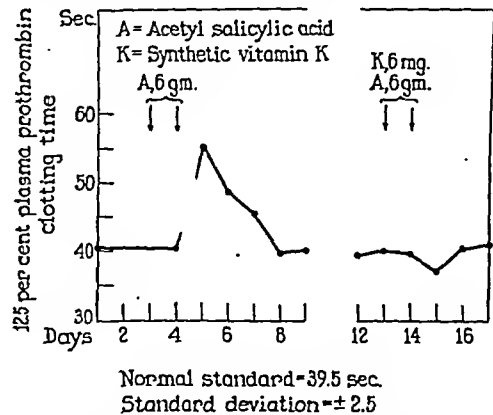


Chart 1.—Protective action of 6 mg. per day of synthetic vitamin K against the prothrombinopenia induced by 6 Gm. daily of acetylsalicylic acid.

three days. Subsequently the salicylate medication was resumed and 9 mg. of menadione was administered daily. During the first six days almost complete protection against the prothrombinopenia occurred, but following this the prothrombin time gradually increased despite the continuance of the antihemorrhagic substance. Commencing on the seventeenth day 400 mg. of ascorbic acid was given intravenously daily for four successive days (in addition to the salicylate and

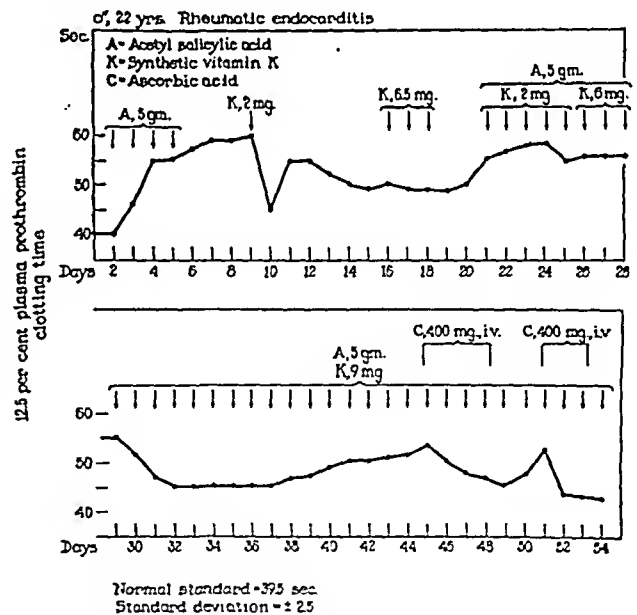


Chart 2.—Prothrombinopenia induced in a case of acute rheumatic endocarditis by 5 Gm. per day of acetylsalicylic acid and failure of doses of 2 to 9 mg. daily of synthetic vitamin K to neutralize this effect. The addition of 400 mg. per day of ascorbic acid administered intravenously restored the prothrombin time to normal.

menadione) and this was followed by a reduction of the prothrombin time to almost normal, which, however, became prolonged again immediately after the discontinuance of the ascorbic acid. Repetition of parenteral ascorbic acid was followed again by restoration of the prothrombin time to normal, which increased promptly

8. In 1 case (of sickle cell disease) the prothrombin time of both arterial and venous plasmas was studied (Shapiro, S.: Studies in Prothrombin: V. Arterial and Venous Plasma Prothrombin Time in Man, J. Lab. & Clin. Med. 25: 1596, 1943). No significant difference between these was noted.

after the withdrawal of the vitamin C. This was repeated on three successive occasions, each time with the same sequence of responses.

COMMENT

The prothrombinopenia inducing effect of salicylate is a significant contribution to the possible understanding of the pharmacologic action of one of the foremost drugs used in medicine. Much work has been reported on the fate of salicylates within the body and some of their biologic effects.⁹ Although the degradation product which is responsible for its influence on prothrombin is not yet decided, it nevertheless appears that the site of its activity is probably in the liver, for detoxification of salicylic acid is apparently accomplished by the formation of glucuronides. Hence the nutritional state of the individual, especially in respect to glycogen reserves,¹⁰ should influence the response to salicylates. The importance of vitamin C in the mechanism, at least under certain conditions, is illustrated by the case that has been described in detail.

It appears that salicylate poisoning is a more serious problem in other countries, particularly Great Britain, than in the United States.¹¹ This might be accounted for by differences in diet, especially the freer consumption of fresh green vegetables in this country, which would augment the vitamin K intake.

The incidence of salicylate induced prothrombinopenia as a contributory cause of hemorrhagic phenomena will have to be determined by future observations when clinicians will have become more aware of the possibility. However, since salicylates alter the level (or activity) of prothrombin, prothrombin estimations should be made to determine the extent of this effect, especially when salicylates are used for continued periods of time. The studies reported indicate that prolongation of the prothrombin time is the most common effect; occasionally normal prothrombin time will be found compatible with extended salicylate therapy; in several instances reduction of the diluted plasma prothrombin time has been observed after salicylate administration.

There are no fixed levels of prothrombinopenia at which bleeding is known to be established. Indeed, the factors responsible for the maintenance of the integrity of the capillary wall still remain to be demonstrated. Consequently, except when a prothrombinopenic state is desired, prolonged prothrombin time after salicylates should be restored to normal by administration of vitamin K and, when necessary, vitamin C.

It has not been possible to establish in man a fixed dosage of synthetic vitamin K which will counteract the prothrombinopenia inducing effect of a given quantity of salicylate. Such possible relationship may be influenced by other factors such as the primary disease, fever, nutritional limitations and hepatic disorders. However, it appears that generally approximately 1 mg. of menadione is required to neutralize the prothrombinopenia inducing effect of 1 Gm. of acetylsalicylic acid.

9. Kapp, E. M., and Coburn, A. F.: Urinary Metabolites of Sodium Salicylate, *J. Biol. Chem.* **145**: 549, 1942. Lutwak-Mann, C.: The Excretion of a Metabolic Product of Salicylic Acid, *Biochem. J.* **37**: 246, 1943. Hanzlik, P. J.: Action and Uses of the Salicylates and Cinchophen in Medicine, Baltimore, Williams & Wilkins Company, 1927. Lutwak-Mann,¹⁰ Madisson.¹⁰

10. Lutwak-Mann, C.: The Effect of Salicylate and Cinchophen on Enzymes and Metabolic Processes, *Biochem. J.* **36**: 706, 1942. Madisson, H.: Ueber pathologisch-histologische Befunde bei therapeutischer und experimenteller Natrium Salicylat Vergiftung sowie deren gunstige Beeinflussung durch Traubenzucker, *Deutsches Arch. f. klin. Med.* **176**: 612, 1934.

11. Hurst, A., and Lintott, G. A. M.: Aspirin as a Cause of Hematemesis: A Clinical and Gastroscopic Study, *Guy's Hosp. Rep.* **89**: 173, 1939. Wetzel, M. C., and Nourse, J. D.: Wintergreen Poisoning, *Arch. Path.* **1**: 182 (Feb.) 1926. Balázs, J.: Ueber Azetylsalicylsäure (Aspirin)-Vergiftungen, *Med. Klin.* **26**: 1664, 1930. Is Aspirin a Dangerous Drug? editorial, *J. A. M. A.* **124**: 777 (March 18) 1944.

For estimation of the prothrombin time we have found the most sensitive and most reliable method to be that which utilizes diluted (12.5 per cent) plasma. For proper execution this requires a thromboplastic agent of high activity, and for such an extract fresh rabbit lung has been found to be the best source.

SUMMARY

The level (or activity) of prothrombin should be determined by estimation of the prothrombin time when salicylate therapy is used.

Approximately 1 mg. of synthetic vitamin K will counteract the prothrombinopenia inducing action of 1 Gm. of acetylsalicylic acid. When factors such as fever, toxemia and limited nutritional intake complicate the situation, adjuvants such as ascorbic acid might be needed also. This is determined by serial estimations of the prothrombin time. This procedure has been found to be most sensitive and reliable when diluted (12.5 per cent) plasma is used.

45 East Eighty-Fifth Street.

RATIONALE OF NAVAL RECRUIT SELECTION METHODS

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WASHINGTON, D. C.

The futility of judging the efficacy of neuropsychiatric selection procedures by emphasizing individual failures or by referring to small series of cases is apparent, for to be accurate the evaluation must be made in the light of the over-all picture. Any screening method, no matter how fine the mesh, will overlook instances of seemingly manifest psychopathology and eliminate others who in spite of suspected unfitness are capable of satisfactory performance under stress. These errors, however, do not negate the usefulness of neuropsychiatric selection methods in use in induction and training stations; they simply indicate that there are limitations to the ability of psychiatrists to detect all those who may possibly sustain neuropsychiatric breakdowns in the military service. It is true that more time could be spent profitably in the induction center neuropsychiatric examination should the circumstances permit, but the fact is that the exigencies of war have not permitted it. Hence the psychiatrist has been required to make the best of the short time at his disposal. The Selective Service System has tried to remedy this defect by assembling as much information as is attainable before the inductee arrives at the induction station. This auxiliary procedure is fully described in Selective Service Medical Circular No. 4.

From a naval service standpoint, there are four categories into which all of the psychiatrically unfit, potential or active, will fit:

Group 1 is composed of those who are obviously unfit and whose disability is frankly self evident during the course of a short psychiatric examination. These persons may be detected in the induction centers, and they account for most of induction center rejections.

From the Bureau of Medicine and Surgery, Navy Department.
This article has been released for publication by the Division of Publications of the Bureau of Medicine and Surgery of the U. S. Navy. The opinions and views set forth in this article are those of the writer and are not to be considered as reflecting the policies of the Navy Department.

Group 2 is made up of those borderline persons who are questionably fit but concerning whom further historical data or a period of observation, or both, are required in order to evaluate more accurately their fitness for military duty. In the naval service these men can be detected at the naval training stations, where, after a period of observation and trial duty, aptitude or inaptitude for the service can be demonstrated.

Group 3 consists of those who are potentially unfit but not obviously so, since they are able to adjust reasonably satisfactorily for a period of time. However, their adjustment is of the type which becomes strained after about six months of attempted adaptation with only mediocre success, and at this period of their military careers they usually begin to show evidence of their underlying difficulties. Usually, when the pressure and tempo of military life are increased, the symptoms of breakdown appear. In the naval service the peak of this type of maladaptation occurs within the first twelve months. The persons in this group are, according to Naval Regulations, separated from the service only after hospitalization and study by a duly constituted board of medical survey.

Group 4 represents those who, according to the most proficient tests, have met the highest standards of psychiatric fitness. To all intents and purposes they are normal, well integrated individuals, but when confronted with the greater than normal stress of actual combat or prolonged operational duties they for the first time show definite evidence of functional disabilities. These persons are then admitted to naval mobile or base hospitals and eventually find their way back to the United States if readjustment is not possible.

The neuropsychiatric census of most naval hospitals in the United States remains fairly constant except for the hospitals along the coast line, where the population reflects the fluctuation in the incidence of overseas breakdowns. A statement of the neuropsychiatric census of base hospitals, dispensaries and sick bays outside the continental limits is at present not possible because of security reasons, yet there is reason to believe that the psychotic population is much lower than would be expected in a cross section of a civilian population. For the most part casualties in these areas belong to groups 3 and 4, as just described, the only point of distinction being that the stress of combat duty was required to precipitate their breakdown.

It is patent that there are so many variable factors operative in groups 2, 3 and 4 that there can be no test situation, no battery of psychologic examinations and no psychiatric examination which will efficiently and consistently predict the likelihood of breakdown in any given case with sufficient accuracy to be of absolute prophylactic value. The most reliable criteria for predicting these occurrences are time and observation in the actual situation of stress.

It is for this reason that present naval procedures require the reexamination of recruits immediately on their reporting to naval training stations even though the elapsed time since the induction station examination is only a few weeks. Not only is the benefit of additional psychiatric opinion obtained in this manner, but there are also additional advantages. Recruits can be held in observation wards until such time as the psychiatrist has had an opportunity to study them more thoroughly than is permitted by a brief interview. Any one who is believed to be mentally or emotionally unfit for service is again carefully examined and, if the impres-

sion is corroborated, he is then brought before an aptitude board for final review and decision. It is the function of this board to decide on the merits of the examinations and determine whether or not the recruit shows inaptitude for the naval service. There are no provisions for limited service, and therefore those men who are selected as being suitable material for further training have to have more than a likelihood of being able to meet service standards. This determination per se is in no way an estimation of the man's capacity to adjust in a less demanding civilian situation. It merely determines his capacity to adjust in the U. S. Navy, for if the recruit is to be of value in the Navy he must be ready for any type of duty anywhere at any time.

A survey of the neuropsychiatric conditions of the armed forces to date amply substantiates the wisdom of grouping the neuropsychiatric casualties as outlined. A sufficient body of statistics has been accumulated on which to assume that the foregoing estimations of frequency and occurrence in the categories already delineated are reliable. Observations based on experience since the declaration of the national emergency have corroborated the long held psychiatric opinion that the best test of a man's fitness for military service is a careful clinical neuropsychiatric examination. "Pencil and paper tests" and various other psychologic tests are extremely useful because they are factual and standardized and remain as concrete records of the man's performance at the time of the examination and lend themselves to comparison, but the results of these tests have to be validated by, as well as coordinated with, the clinical psychiatric examinations and actual service adjustments.

As the time permitted for the neuropsychiatric examination in the various induction centers is extremely brief, it follows that for the most part only group 1 patients can be expected to be recognized in such a short superficial neuropsychiatric appraisal.

It is obvious that the benefit which accrues from the screening procedures at the naval training stations is, by and large, attributed to the observation and trial of duty period for four to six weeks which permits conclusions to be based on performance capacity in an actual test adjustment situation. Reports of the capability of the recruit submitted by his company commander are based on a scrutiny of his reactions to military life and his relationship with his fellow recruits throughout these weeks and are of great value. By these measures, conjecture and supposition are supplemented by a controlled trial and error type of military setting which is similar to that which he will encounter for the remainder of his naval career. Even here there are possibilities for error. Although the training situation is an abrupt change from his civilian life, nevertheless it is a rather protected environment and does not at all resemble conditions in a combat area or those encountered on small combatant ships.

Psychiatric examinations are based primarily on clinical impressions and whatever history is available, and there is a time limit in which they can be efficiently perfected. It readily follows that if only three minutes is allowed for the examination there is a limit to the value of even the best possible three minute psychiatric examination. To provide a more efficient instrument it becomes necessary to increase the examination time. It may be tacitly assumed that psychiatric examinations, as they are conducted in the induction centers

and the training centers, are of equal caliber. Therefore, that a percentage of the men who will ultimately be demonstrated to be psychiatrically unfit for military service are "missed" by both the induction center and the training station examinations does not reflect discredit on the examining physicians or their methods. It merely means that they are unable to predict, from any single or battery of examinations and tests available at the present time, the men who will at a later date become groups 3 and 4 casualties.

Of a sample study of recruits examined at naval training stations the first four diagnoses in the order of their frequency of occurrence were (1) constitutional psychopathic states, (2) psychoneuroses (all types), (3) mental deficiency, (4) epilepsy. From this it is logical to infer that these cases were not originally eliminated at the induction centers because of time limitations and the impossibility of observation in the actual military situation.

In a consideration of the constitutional psychopathic states the characteristic abnormality is one of performance. Repeated maladjustment in numerous situations is the essence of the disturbance. The implications of this diagnosis are different from those usually appreciated by civilian psychiatrists. By and large the bulk of these men, while they demonstrate inadequacy for military service, have been able to conform satisfactorily in less demanding civilian situations. Disruption of accustomed life patterns, separation from home and family, economic inconveniences, military discipline and limited personal freedom, coupled with the very real threat of danger, constitute a series of handicaps which these persons are not able to accept and overcome. However, in the final analysis the hazard these elements constitute in any given case can be estimated only by the fact of performance. This is a function of time and the stress situation. A prebreakdown recognition that these persons are potential casualties is possible only in the light of a detailed historical review and complete psychiatric examination. Obviously the time allowed for this at induction centers is not sufficient for the purpose. Here an additional benefit accrues to the observation period of six weeks in a training station, which not only permits a more complete examination but also allows for the desired documentation from reliable sources in all cases in which a psychopathic background is suspected. The social service inquiry is a major function of the training station screening program.

In the training station examinations there also seems to be an incidence of psychoneurosis which presumably has been "missed" by the psychiatrists at the induction center; however, it is doubtful that these cases were actually "missed." It is more reasonable to assume that they could not have been detected by the type of examination conducted at the induction centers. It is an accepted medical fact that the diagnosis of psychoneurosis requires a great deal of time in order to examine thoroughly and elicit requisite information on which to establish it as an authenticated diagnosis. Here again time and observation seem to be the important elements.

In the instance of mental deficiencies, it should be remembered that all training stations utilize the services of psychologists, whose function it is to test accurately the suspected recruit's intelligence, performance and capabilities by standard psychometric procedures. The training station psychologist has an advantage over the psychologist working in induction centers in that he

can confirm his test results by permitting the applicant to demonstrate his aptitude by trial duty in the recruit company.

In the case of epilepsy a similar situation prevails. In order to establish an authentic diagnosis of epilepsy it is important, if at all possible, to observe the characteristic overt signs. The training station program of observation permits this. Further, hospitalization with the use of electroencephalography in diagnosis clarifies the uncertainty in the doubtful instances of fainting, repeated dizzy spells, momentary "blackout periods" and so on.

Further, it is apparent that this failure to detect all individuals in the foregoing groups is not attributable to the necessarily hasty examination on the part of the physicians at the induction centers, for statistics clearly show that they efficiently detect the more readily diagnosed neuropsychiatric disabilities, such as frank psychoses and psychoneuroses and neurologic disorders.

These conclusions are borne out in an analysis of the diagnoses and frequency of occurrence in group 3. From a review of the reports of boards of medical survey over a period of several months it is learned that there is a significant difference in the frequency of all diagnoses encountered, as follows:

1. Psychoneuroses (all types).
2. Constitutional psychopathic states.
3. Miscellaneous disabilities (epilepsy, mental deficiency and so on).

These diagnoses constitute a different order in the frequency of disabilities, as seen in group 2, and may be thus differentiated (even if only by degree) from the other groups.

From the foregoing it is apparent that no single psychiatric examining body can hope to perfect its screening methods to a point where it can detect all the potential psychiatric disabilities. Yet, each separate activity—the induction centers, the training stations and the various boards of medical survey at naval hospitals—serves a unique prophylactic function by an examination of service personnel at different stages in their military career, whether it be submarine, aviation or amphibious operations. No one of these activities can be expected to assume effectively the function of the other, and there can be no substitute for the most important elements in any psychiatric examination—time and observation in the actual situation.

The Origin of Hindu Medicine.—The ancient documents of the Hindus, known as the Vedas or the books of revealed wisdom, were composed about fifteen hundred years before the Christian era. These contain scattered references to physicians and to the healing power of certain herbs and waters. But the art of healing is mainly an attribute of the gods. Strange notions are entertained about the nature of diseases, lapse of centuries and the gradual inroads made by foreign influences, the divine concepts and revelations yielded to a saner and more mundane view. Beginning approximately with the dawn of the eighth pre-Christian century, the practice of medicine fell to the lot of the Brahmin priests and scholars; this art they guarded zealously, transmitting their stereotyped knowledge to successive generations. The first evidence of change and improvement appears in the documents of the Susruta (ca. 500 B. C.) and the Vagbhata (ca. 700 B. C.). These compilations show decided advances, although based on contributions of their earliest predecessors. They still present a tinge of the supernatural as a potent force in the cause of disease and note the value of prayer and contrition in the treatment thereof.—Ricci, James C.: *The Genealogy of Gynecology*, Philadelphia, Blakiston Company, 1943.

Clinical Notes, Suggestions and New Instruments

SELF-INFLICTED EXCISION OF LARYNX AND THYROID AND DIVISION OF TRACHEA AND ESOPHAGUS WITH RECOVERY

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A patient was admitted to an army hospital on March 4, 1942 with a history of a self-inflicted wound to remove his "voice box." When admitted he had a transverse incision at the level

It was found that the patient had removed his hyoid bone, larynx, thyroid gland (including three parathyroids), trachea down to about the third ring, about 2 inches of the anterior part of the esophagus, and about $\frac{1}{2}$ inch of the posterior part of the esophagus (fig. 2).

The edges of the skin made by the vertical incision were sutured to the remaining portions of the esophagus and trachea and the posterior portions of the esophagus sutured together. Three days later a gastrostomy was done, and a silk thread was run through the patient's nose, down the esophagus and



Fig. 1.—Superior portion of specimen, including hyoid bone with numerous cuts and larynx.



Fig. 2.—Posterior portion of specimens including larynx, portion of trachea and esophagus, with applicator stick through esophagus.



Fig. 3.—Position of flaps.

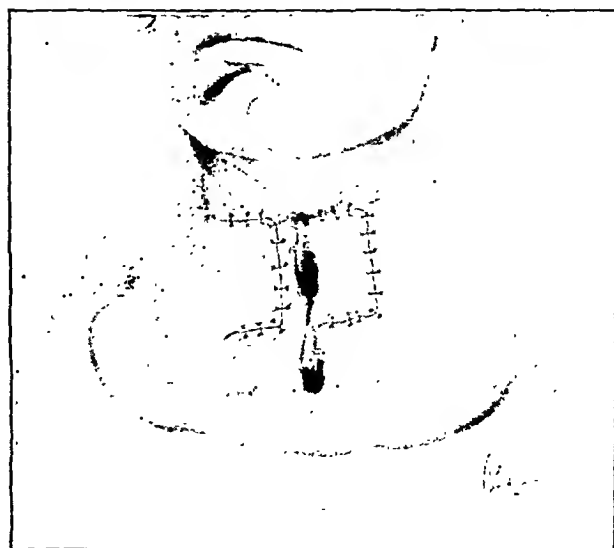


Fig. 4.—Position of flaps.

of the hyoid bone from one sternomastoid muscle to the other, and he was cyanotic from hemorrhage and clots in his neck. In a paper bag, brought in by the ambulance attendant, was the specimen shown in figures 1 and 2. An incision was immediately made in the midline down to the junction of the trachea, which had been cut off. After the clots over the tracheal opening had been cleaned out the patient's cyanosis was relieved.

out the gastrostomy opening. This was done to facilitate dilation if it should become necessary afterward.

A few days later a written statement was obtained from the patient stating that he cut his throat with a single edge razor

blade, placed his fingers in the trachea and pulled the specimen (shown in figs. 1 and 2) out of the incisions and cut it off.

Three weeks later the plastic repair of the esophagus was started. The contracture due to the suturing of the posterior

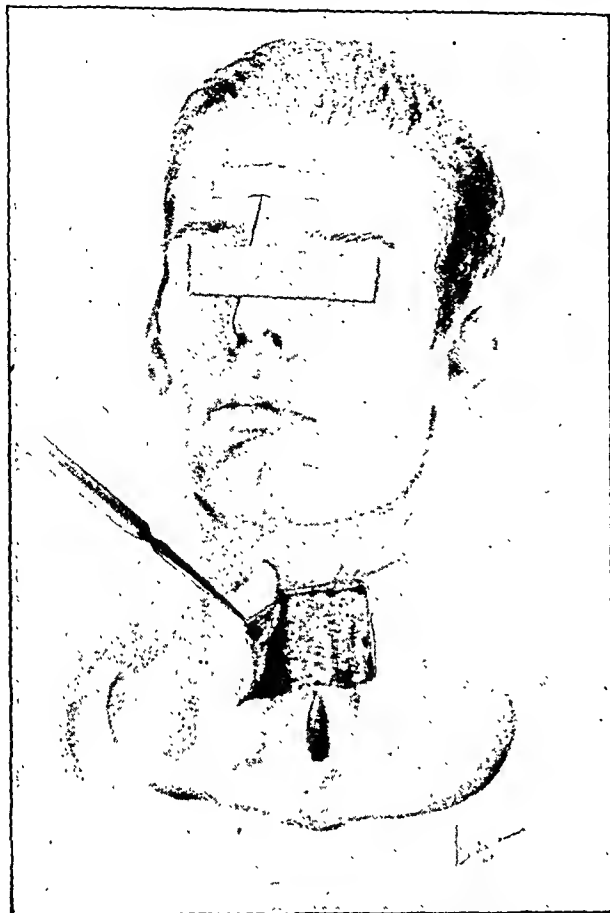


Fig. 5.—Flaps in position.



Fig. 6.—Repair of esophagus, ten days after operation.

wall of the esophagus together was relieved by a Z plastic. A flap 3 inches long by $2\frac{1}{2}$ inches wide on the left side of the neck was outlined, elevated and sutured back into its original

position. Then a flap on the right side 3 inches long by $4\frac{1}{2}$ inches wide was elevated, leaving a border of normal skin $\frac{1}{2}$ inch wide and 3 inches long next to the esophagus (figs 3 and 4).

In three weeks the flaps were elevated again, and the flap on the left side was turned on itself and sutured to the normal skin left adjoining the esophagus; the ends were sutured to the remaining portion of the esophagus. The flap on the right side was brought across the anterior wall of the esophagus formed by the flap from the left side and into the defect left by the flap from the left side (figs. 5 and 6).

The sutures were removed in seven days, and the wounds had completely healed. The patient was then given a liquid diet, and the gastrostomy was closed one week later. He was given a general diet and ate regular army rations until he was discharged from the hospital.

The possibility of growth of hair in the esophagus was discussed with the dermatologist and radiologist and it was felt that epilation by roentgen irradiation would reduce the vitality of the flaps; hence this treatment was felt not to be indicated.

After six months an esophagostomy was done, and no growth of hair was found.

When the patient was discharged, he was eating regularly and had gained 35 pounds (16 Kg.).

SULFADIAZINE IN THE TREATMENT OF 200 CASES OF ACUTE CATARRHAL NASOPHARYNGITIS

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MEDICAL CORPS, ARMY OF THE UNITED STATES

Nasopharyngitis, acute, catarrhal, is the diagnosis of the common cold as officially given by the Medical Corps of the Army of the United States.¹ It is an important condition in the army for the reason of loss of time from duty, time spent in quarters and/or hospital, the contagiousness, the expected incidence in certain areas and the sequelae of complications. One of us (F. B. F.) during a tour of duty as medical officer in charge of sick-call noted the high incidence of 7 per cent of nasopharyngitis in a company of soldiers quartered in the same barracks and area. It was felt that all these men should be hospitalized as a prophylactic measure to reduce to a minimum the exposure of the well troops to the causative agent.² After a period of two weeks the incidence of the disease among this company was reduced to 0 per cent. This shows the contagiousness and a manner of preventing the disease.

The value of routine use of the sulfonamides in the treatment of the common cold has been greatly speculated on by the medical profession. Cecil, Plummer and Smillie³ have briefly reviewed the literature in their study of the sulfadiazine treatment of the common cold. They are opposed to the routine use of sulfonamides but would favor their use in a few selected cases as a protection against severe infection.

METHOD

Two hundred cases of acute catarrhal nasopharyngitis ranging from mild to pronounced severity were treated at this station and are used in this analysis.

All patients were treated empirically by use of saline gargles hourly, mild protein silver and/or ephedrine nose drops, cathartics and/or enemas, and when necessary the use of salicylates as needed.

A series of the patients, not picked, but as routine, were put on sulfadiazine therapy, similar to that used in pneumonia,⁴ 4 Gm. initially and 1 Gm. every four hours. The least total dosage was 4 Gm., the highest 40 Gm. and the average dosage 15 Gm. The series reached a total of 113 cases. Another

1. Records of Morbidity and Mortality. Sec. VII, Standard Terms for Diagnosis, Army Regulations 40-1025, par. 65, Oct. 12, 1940.
2. Cecil, R. L.: Textbook for Medicine, ed. 5, Philadelphia, W. B. Saunders Company, 1942, p. 5.
3. Cecil, Russell L.; Plummer, Norman, and Smillie, W. G.: Sulfadiazine in the Treatment of the Common Cold, J. A. M. A. 121:2 (Jan. 1) 1944.
4. Rusk, H. A., and van Ravenswaay, A. C.: Sulfadiazine in Respiratory Tract Infections: Its Value in Treatment During Winter of 1943-1944 at Jefferson Barracks, Missouri, J. A. M. A. 122:495 (June 19) 1943.

series, as controls, were treated with caffeine, acetophenetidin and acetylsalicylic acid compound capsules and/or acetylsalicylic acid. This series reached a total of 87 cases.

ANALYSIS

The total hospital days in the series treated with sulfadiazine was 648 days. The total hospital days in the control series was 492 days. The average number of days was 5.6 for both series.

The morbidity was studied by ascertaining the highest temperature in each case, thus classifying each. The number of days the temperature was above normal was then noted. The number of days of morbidity in the sulfadiazine treated cases was 179, in the control series 93 days. The temperature range of sulfadiazine treated cases was 99 to 106 F., in the control series 99 to 103 F. This study of morbidity shows that the majority of cases with higher temperatures and greater morbidity were treated with sulfadiazine.

A typical report of a smear of the throat in 21 cases studied bacteriologically was many polymorphonuclear leukocytes, a few to frequent red blood cells, with various types of organisms, singly or mixed. It is of interest to note that patients with chains of cocci receiving sulfadiazine had a shorter hospitalization even in this meager study. Those cases with staphylococci predominating did not respond readily to the use of sulfadiazine. The patients with diplococci receiving sulfadiazine improved at a better rate than those not receiving the drug. The patients with mixed infection with diplococci and chains of cocci had a longer recovery time than those with a more simple throat smear.

In the series were 14 Alaskan Aleut Indians from the Pribilof Islands, with a total of 84 hospital days, an average of 6 days per case; 103 patients were Negroes, 58 without sulfadiazine with an average of 6.1 hospital days, and 45 with sulfadiazine with an average of 5.4 hospital days; 75 patients were white, 24 without sulfadiazine with an average of 5.1 hospital days, and 51 with sulfadiazine with an average of 5.6 days.

Complications were bronchitis, tonsillitis, laryngitis and myringitis and sacroiliac pain. The average hospital days of sulfadiazine treated cases with complications were 6.2 days. The average hospital days of the control cases with complications were 9.9 days. This shows the effectiveness in reduction of the period of hospitalization with sulfadiazine therapy in controlling the complications of nasopharyngitis.

There was only 1 patient who developed a rash or showed signs of sulfonamide intoxication after ingestion of 8 Gm. of sulfadiazine. This promptly disappeared after cessation of the drug. Tonsillitis was a complication and it took 16 days before the patient was deemed well enough to be discharged.

SUMMARY

1. Prophylaxis against nasopharyngitis can be accomplished by isolation of actual cases in an Army post.
2. Two hundred consecutive cases were studied: in 113 sulfadiazine therapy was employed similar to that used in pneumonia; 87 cases were used as controls. The average number of hospital days for both series was exactly the same: 5.6 days.
3. Morbidity study shows that sulfadiazine will shorten the hospital stay of the more seriously ill patient.
4. Sulfadiazine treated patients with simple bacteriologic throat smears of cocci or diplococci recovered more rapidly than those showing mixed infections or staphylococci.
5. There was no pronounced difference between the racial groups represented.
6. Patients developing complications recovered more rapidly with the use of sulfadiazine.
7. Only 1 case of untoward reaction was encountered in this study.

CONCLUSIONS

1. Sulfadiazine in the treatment of nasopharyngitis, judiciously used, is an aid in reducing the number of hospital days in patients with greater morbidity.
2. Sulfadiazine is of definite value in treating and preventing the complications of nasopharyngitis.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

AN APPRECIATION

The Council on Physical Therapy desires to take this opportunity to express its feelings of gratitude and appreciation for the services of the following consultants, whose assistance in carrying out the work of the Council has been given so freely during the past year:

Drs. Charles Bahn, Walter M. Boothby, Milton B. Cohen, William J. Egan, Hart Fisher, K. G. Hansson, John S. Hibben, Alexander Hollaender, K. K. Jones, Arno B. Luckhardt, S. L. Osborne, Winifred Overholser, Bernard D. Ross, Lauriston Taylor, Ralph Waters and W. F. Wells.

Audiometers and Hearing Aids: Drs. George M. Coates, E. P. Fowler, W. E. Grove, Dean Lierle, Isaac Jones, Walter Hughson, Douglas Macfarlan, C. Stewart Nash, Horace Newhart, Paul Sabine and B. R. Shurly.

Educational Work: Drs. Frances Baker, Robert L. Bennett, Benjamin Boynton, Mauriel Case Downer, Earl C. Elkins, F. H. Everhardt, Richard Kovacs, Fred B. Moor, W. H. Northway, William Schmidt, Arthur L. Watkins and Walter J. Zeiter.

Ophthalmic Devices: Drs. Charles A. Bahn, S. Judd Beach, Conrad Berens, Alfred Cowan, Frederick Carl Cordes, Walter B. Lancaster, William H. Leudde, Sanford Gifford (deceased) and Avery C. Prangen.

Artificial Limbs: Drs. S. Perry Rogers, Harry E. Mock, Paul Steele and Phillip Wilson; Messrs. McCarthy Hanger Sr., W. E. Isle, J. B. Korrady, Joseph Spievak and David E. Stolpe.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D., Secretary.

BISMUTH ETHYLCAMPHORATE (See New and Nonofficial Remedies, 1944, p. 233).

The following additional dosage form has been accepted:
THE UPJOHN COMPANY, KALAMAZOO, MICH.

Ampuls Bismuth Ethylcamphorate (in oil): 2 cc. Each cubic centimeter contains a suspension of bismuth ethylcamphorate equivalent to 0.04 Gm. of elemental bismuth, camphor 0.10 Gm. and benzyl alcohol 0.025 Gm. dissolved in vegetable oil.

SODIUM SULFAMERAZINE (See THE JOURNAL, May 6, 1944, p. 31).

The following additional dosage forms have been accepted:
SHARP & DOHME, INC., PHILADELPHIA

Ampuls Sterile Solution Sodium Sulfamerazine 6%: 50 cc. Each 50 cc. contains sodium sulfamerazine 3 Gm. in distilled water.

Ampuls Sterile Solution Sodium Sulfamerazine 20%: 15 cc. Each 15 cc. contains sodium sulfamerazine 3 Gm. in distilled water.

CITRATED NORMAL HUMAN PLASMA (See New and Nonofficial Remedies, 1944, p. 533).

The following additional dosage form has been accepted:
SHARP & DOHME, INC., PHILADELPHIA

Vacule Ampul-Vial Lyovac Normal Human Plasma: 500 cc. Containing a sufficient amount (preserved with phenylmercuric borate 1:25,000) to yield 500 cc. of restored plasma, packaged with a 500 cc. bottle of distilled water as a diluent (containing 0.1 per cent citric acid and equipment for intravenous injection).

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SATURDAY, JUNE 24, 1944

THE 1944 SESSION

The wartime session of the American Medical Association, held last week in Chicago, was a remarkable demonstration of the importance of such medical assemblages in the war effort. Unquestionably the morale of the medical profession was improved. New knowledge of medical advancement in the war period was brought to the attention of thousands of physicians who otherwise would have been delayed in bringing themselves up to date. Interest in research was greatly stimulated and the unity of medicine's approach to its social and economic problems was intensified. The attendance, in view of difficulties of transportation and hotel accommodations, was extraordinary, reaching a total of 7,284. Almost complete satisfaction with the arrangements and the features of this session was expressed by the physicians, the distinguished guests, the exhibitors and all others who participated.

The House of Delegates devoted its sessions to consideration of problems of great significance for the future of medical practice. The reports of the House of Delegates, which will appear in this and succeeding issues of THE JOURNAL, deserve the attention of every physician who is interested in the place of medicine in our economy. Once again the House of Delegates established its leadership by setting forth policies for the American physician which will insure the maintenance of a high quality of medical service, a high standard of medical education and a wider distribution of good medicine to more people. By prompt action relative to medical education, the importance of continuity of teaching and of maintaining an adequate supply of premedical students was emphasized to the nation. Messages were sent directly to all interested government officials and to the Committees on Military Affairs of the House and the Senate.

Many of the resolutions of the House of Delegates were concerned with the functions of the Council on Medical Service. These were much more clearly defined, particularly in relationship to the office of

this council in Washington. By the elections the House of Delegates indicated its satisfaction with the progress thus far made by this council. A number of resolutions were introduced from the state of California. These would have greatly modified the policies of the American Medical Association; they related to its management, to its representation in Washington and to its contacts with the medical profession and the public. These resolutions were considered unacceptable by the House of Delegates and were refused by an overwhelming majority.

By its election of Dr. Louis H. Bauer, formerly chairman of the Council on Medical Service, as a trustee, by its unanimous election of Dr. Roger I. Lee, chairman of the Board of Trustees, as President-Elect, and by its reelection of other officers the House of Delegates expressed its satisfaction with the conduct of the affairs of the Association. The medical profession of the nation may well accept this recognition and give to the House of Delegates, the Board of Trustees, the members of the various councils, bureaus and others who serve them the support that is so necessary in making the work of the American Medical Association effective.

The scientific sections throughout the week were attended by capacity audiences. For several of the symposiums and panel discussions the attendance more than taxed the capacity of the halls available. This was particularly true for the symposiums dealing with the uses of penicillin, the sulfonamides, rheumatic fever, vitamins and war medicine.

The Scientific Exhibit functioned throughout the session as a continuous graduate school of medicine. The practical character of the lectures, demonstrations and conferences was enthusiastically commended by those in attendance.

A special feature of this session was the military medical meeting, at which the Surgeons General Vice Admiral Ross T. McIntire and Major General Norman T. Kirk delivered inspiring and informative addresses. Also present for addresses were representatives of our Allies, including Lieut. Gen. Robert K. S. Lim of the Chinese army medical administration and Major Gen. Brock Chisholm of the Royal Canadian Army Medical Corps. Unfortunately the distinguished representative of Russia, Dr. Vladimir V. Lebedenko of the Russian Red Cross, was unable to be present but sent a telegram of greetings.

The facilities available in Chicago were such as to compel the holding of the Technical Exhibits on several floors of one hotel, the Scientific Exhibit and the House of Delegates in another and the scientific sections in still several other halls and hotels. Fortunately transportation was excellent and the dissemination of these various features did not seem to interfere even slightly with the success of the meeting.

Again the American Medical Association has met the challenge by providing the physicians of America with a great forum where they can assemble to speak as a democratic body for the American physician and to strive for those objectives of the Association emphasized by its Constitution: "to promote the science and art of medicine and the betterment of public health."

DR. ROGER I. LEE—PRESIDENT-ELECT

Summoned by a unanimous vote of the House of Delegates to accept the office of President-Elect, Dr. Roger Irving Lee of Boston was unanimously elected to be President of the American Medical Association for the period 1945-1946. To those intimately associated with the affairs of the American Medical Association, this is the culmination of many years of service given by Dr. Lee. Dr. Lee was chairman of the Section on Pharmacology and Therapeutics in 1927 and 1928. He was a delegate in 1911, 1926, 1928 and from 1930 to 1934. In 1934 he was elected a member of the Board of Trustees and reelected to that office in 1939. He became chairman of the Board of Trustees in 1942 and was reelected to that office in 1943. Since 1941 he has been a representative of the American Medical Association on the Division of Medical Sciences of the National Research Council. Long before his official association as a leader in the activities of the American Medical Association, coincidentally, Dr. Lee had begun his contribution to medicine in his state and in many other medical organizations.

Dr. Lee was born in Peabody, Mass., Aug. 12, 1881. He received the A.B. degree from Harvard in 1902 and the M.D. degree in 1905. He practiced medicine in Boston beginning in 1905 and became, as the years passed, visiting physician to the Massachusetts General Hospital from 1912 to 1923 and the Henry K. Oliver professor of hygiene at Harvard from 1914 to 1924. In 1924 he resumed private practice. He was consultant in internal medicine and was chosen an overseer of Harvard University for 1930-1931, and named a fellow of Harvard University in 1931. During the first world war he served as a major in the Medical Reserve Corps and was

promoted to lieutenant colonel on June 6, 1918. He served in France with Base Hospital No. 5 and was consultant in medicine to the Third Corps of the American Expeditionary Force. As early as 1910 he was secretary of the Massachusetts Tuberculosis Commission. In 1921 he became a member of the Public Health Council of the State of Massachusetts and filled that position until 1934. He is a member of the Association of American Physicians, the American Association for the Advancement of Science, the American Society for Clinical Investigation, a regent and former president of the American College of Physicians, a member of the American Academy of Arts and Sciences and a former president of the Massachusetts

Medical Society. In the course of his association with various authoritative bodies and commissions, he wrote a book on "Health and Disease" in 1917 and with Lewis W. Jones another book on "The Fundamentals of Good Medical Care," which was published as a part of the contribution of the Committee on the Costs of Medical Care. Dr. Lee is also a member of the American Clinical and Climatological Association and of the specialty board on internal medicine. He is a fellow of the Royal College of Physicians of London. In the city of Boston Dr. Lee has been associated with many civic activities, among them the Committee on Public Health of the Boston Chamber of Commerce.

In all his work the contribution of Dr. Lee has been characterized by a keen insight, a great respect for

honesty and integrity, complete fairness and an extraordinarily fine sense of humor. When he became president of the American College of Physicians he stated as his platform "reasonable but not excessive specialism in medicine and an adequate appreciation of the efforts of the general practitioner." This should commend him particularly to the members of the American Medical Association, which now embraces more than 125,000 physicians in its membership, the majority of whom are general practitioners. His experience as a leader in education, in public health and in the practice of medicine indicates that the American Medical Association will have wise guidance and counsel during the years in which he will fill the positions of President-Elect and President.



ROGER IRVING LEE, M.D.

PRESIDENT-ELECT OF THE AMERICAN MEDICAL ASSOCIATION

THE INDIVIDUAL STREPTOCOCCUS CARRIER

Streptococcal infections have long been known to be communicable. During the acute stages of some types of streptococcal diseases attempts are made to limit transmission to other persons by isolation of the patients, as in scarlet fever. After recovery from streptococcal diseases some persons remain carriers for a long time, but comparatively few transmit infection to others.

The reason for this difference in behavior is not known. There are no known cultural, morphologic, serologic or chemical differences between the streptococci of carriers who give rise to return cases and those who do not. There has been no method of determining which carriers are dangerous and need further treatment or isolation and which are relatively harmless to others.

Coburn¹ has recently described two outbreaks set up by individual carriers and discussed the nature of infectivity or communicability. In a group of about 200 patients with throat infections due to hemolytic streptococcus group A, type 19, some of whom had an erythematous skin rash while others did not, were two men who proved to be dangerous carriers after discharge from the hospital, both giving rise to additional cases. One had an acute pharyngitis followed by mastoiditis, sinusitis and bronchitis. He gave rise to 4 cases of scarlet fever or acute pharyngitis during readmission to the hospital for mastoidectomy. The other had a sinusitis and a focal pneumonitis following attack of scarlet fever. Later, while he was in an orthopedic ward containing 40 bed patients, for observation following a minor head injury, he gave rise to 16 cases of streptococcal infection.

In neither carrier was the number of streptococci in throat cultures large, and in neither of them was the organism highly invasive. In both, however, the communicability was high and outbreaks occurred. Coburn believes that a high degree of communicability, and thus the dangerous carrier state, may be acquired by the streptococcus during secondary streptococcal infections and during an outbreak of virus infections of the respiratory tract. The former condition existed in these patients, each having had a subacute secondary respiratory tract infection. Communicability ceased when the infectious process subsided. This was hastened by the use of sulfonamides.

Coburn suggests that communicability is acquired by an adaptive change in the bacteria to the changing immune state in the host under conditions of an infection in which neither host nor micro-organism can establish supremacy promptly. Because of the change the bacteria become able to multiply in the presence of inhibitory substances of the normal mucous mem-

branes—they are "host fast." This property may be quickly lost, but while it exists the bacteria have a high degree of communicability. Fundamentally it may depend, Coburn speculates, on the development of adaptive enzyme systems.

Besides suggesting how the dangerous carrier state may be recognized, this paper makes specific recommendations regarding its management. It also suggests a course which future investigations might take in attempts to understand the individual carrier.

PATHOGENESIS OF MÉNIÈRE'S DISEASE

Ménière's disease is characterized by a combination of vestibular and auditory disorders. Vertigo is the chief and the disabling symptom, but deafness and tinnitus are so common that they must be regarded as part of the clinical picture. Ménière in 1861 suggested that these symptoms were due to a disorder of the inner ear and that the underlying lesion was an intralabyrinthine hemorrhage. Charcot, a contemporary of Ménière, observed that in some patients the attacks of vertigo ceased when deafness became complete. He suggested that the cure could be hastened by an intracranial section of the auditory nerve. The operation was not successfully performed until 1928, when Dandy¹ reported a number of successful sections of the eighth nerve. "We know," he states, "that the acoustic division of the auditory nerve is affected because of the loss of hearing and that the vestibular branch is affected because of the diminished caloric response." Dandy believes that the lesion is in the auditory nerve and that the logical operation for the condition is the intracranial section of the eighth nerve. He has now operated, according to Crowe,² in some 200 cases without a fatality and with uniformly good results. Crowe reports a series of 45 cases in which the vestibular branch alone of the auditory nerve was sectioned. Much to his surprise, actual improvement in hearing on the side on which operation was done followed in 22 per cent of the cases. Crowe believes that division of the vestibular nerve in which all vestibular fibers are divided and all cochlear fibers are spared is the ideal operation, since it cures the vertigo and preserves what hearing the patient had prior to operation.

The pathogenesis of the disease has remained obscure, principally because of the lack of necropsies on cases of Ménière's disease. In 1938 appeared the first careful studies of temporal bones reported by Hallpike and Cairns.³ Recent publications of Wright⁴ and of Crowe² suggest that the clinical manifestations of

1. Dandy, Walter E.: Ménière's Disease: Diagnosis and Treatment: Report of 30 Cases, *Am. J. Surg.* 20: 693 (June) 1933.

2. Crowe, S. J.: Ménière's Disease: A Study Based on Examinations Made Before and After an Intracranial Division of the Vestibular Nerve, *Medicine* 17: 1 (Feb.) 1938.

3. Hallpike, C. S., and Cairns, H.: Observations on the Pathology of Ménière's Syndrome, *J. Laryng. & Otol.* 53: 625 (Oct.) 1938.

4. Wright, A. J.: Aural Vertigo: A Clinical Study, *J. Laryng. & Otol.* 53: 97 (Feb.) 1938.

1. Coburn, A. F.: The Carrier Problem in the Dissemination of Hemolytic Streptococci, *U. S. Nav. M. Bull.* 42: 325 (Feb.) 1944.

Ménière's syndrome are caused by well known disorders of the inner ear. Wright believes that the condition is due to bacterial intoxication of the labyrinth and describes it as a focal labyrinthitis. Crowe is less specific in his view of the type of pathogenic agent but ascribes the condition to a disorder of the normal state of pressure and chemical constitution of the endolymph. These views find their support in the morphologic studies of Hallpike and Cairns. They examined temporal bones of 2 patients who died following the operation for the section of the auditory nerve. Microscopic studies of serial sections of the temporal bones in both cases revealed a gross dilatation of the endolymph system which affected chiefly the scala media of the cochlea and the saccule. Degenerative changes were present in Corti's organ and in the stria vascularis. On this morphologic evidence the authors advance the view that the primary mechanism of the disease is an obstructive distention of the endolymph system. They speculate that the general dilatation of the endolymph system in these cases was due to hypersecretion, which had led to the obliteration by pressure of the soft perisaccular tissue. This seems to be unlikely, however, because absence of the perisaccular tissue is to be seen in the unaffected ear in the first case. The suggestion is therefore made that the endolymphatic dilatation in these cases is due to some failure in the normal absorptive mechanism and that morphologic evidence of this failure is provided by the absence from these cases of the normal absorption area of perisaccular connective tissue. The primary change may still be either an increased production of the endolymph itself or else some type of alteration in its physicochemical constitution, as suggested by Crowe.

Lindsay⁵ has reported 3 cases in which labyrinthine dropsy appeared to be the anatomicopathologic basis for the symptoms, but he stresses that the mechanism of the hydrops has not been explained. Further microscopic observations, as well as chemical investigations of the endolymph and of the factors which may produce an increase or a decrease in its volume, will be necessary to throw more light on Ménière's disease.

5. Lindsay, J. R.: Ménière's Disease, *Minnesota Med.* 25: 775 (Oct.) 1942; *Arch. Otolaryng.* 39: 313 (April) 1944.

Current Comment

GEORGE DOCK PRESENTED DISTINGUISHED SERVICE AWARD

The Distinguished Service Medal and Award of the American Medical Association for 1944 were conferred on Dr. George Dock, of Pasadena, Calif., famous physician and medical educator. Dr. Dock was born at Hopewell, Pa., April 1, 1860. He received the M.D. degree from the University of Pennsylvania in 1884, an honorary A.M. from Harvard in 1895, the Sc.D. from the University of Pennsylvania in 1904 and the LL.D. from the University of Southern California in 1936. From 1887 to 1888 Dr. Dock was assistant clinical professor of pathology at the University of

Pennsylvania, becoming professor of pathology at the Texas Medical College and Hospital in 1888. He left Texas in 1891 and became professor of the theory and practice of medicine and clinical medicine at the University of Michigan, where he remained until 1908. From the latter year until 1910 he held the same title at Tulane University Medical School. He was professor of medicine at Washington University School of Medicine, 1910 to 1922, and dean part of that time. He is honorary professor of medicine at the University of Southern California and a member of numerous medical societies, including the American Medical Association, American Association for the Advancement of Science and Association of American Physicians, of which he was president in 1916-17. He is co-author of a book on hookworm disease and of articles and chap-



GEORGE DOCK, M.D.

AWARDED DISTINGUISHED SERVICE MEDAL

ters in many textbooks on medicine. A happy conjunction of events led to the celebration of Dr. Dock's eightieth birthday at a dinner at the Los Angeles County Medical Society in April 1940, on which occasion the organization of the Walter Jarvis Barlow Society of the History of Medicine simultaneously held its first public meeting and the birth of the George Dock Lectureship in the History of Medicine also took place, Dr. Dock being the first lecturer. The award to Dr. Dock of this honor adds a new name to the distinguished list of those who have already been recognized in this manner, including Dr. Rudolph Matas in 1938, Dr. James B. Herrick in 1939, Dr. Chevalier Jackson in 1940, Dr. James Ewing in 1941, Dr. Ludvig Hektoen in 1942 and Dr. Elliott P. Joslin in 1943.

MEDICINE AND THE WAR

POSTWAR PLANNING

RESULTS OF PILOT QUESTIONNAIRE TO PHYSICIANS IN SERVICE

[NOTE.—This report was prepared by Lieut. Col. Harold C. Lueth, liaison officer with the American Medical Association, for presentation to the Committee on Postwar Medical Service and the Council on Medical Education and Hospitals.—Ed.]

A questionnaire was prepared and mailed to certain medical officers by the Committee on Postwar Medical Service in an attempt to determine the probable needs of medical officers during the postwar period. The questionnaire consisted of five main sections: General Information, Education, Industrial, Licensure and Economic. Provision was made for additional information or remarks by the medical officers. Signature of the medical officer was optional.

The questionnaires were mailed to a selected group of 3,000 medical officers on duty with the armed forces. An alphabetical machine record list of all medical officers on duty with the Army, Navy, Public Health Service and Veterans Administration as of Sept. 30, 1943 was used. Every fifteenth name was marked and a questionnaire mailed to the medical officer.

A return self-addressed envelop was enclosed with the questionnaire to facilitate early reply and return.

An arbitrary selection from an alphabetical list was considered to be a fair method of random sampling and was believed to yield an excellent indication of the entire group. In that manner, it was felt, there would be an even distribution of questionnaires among the Army, Navy, Public Health Service and Veterans Administration. Also the questionnaires would be proportionately distributed among the age groups as well as between those in various foreign and home assignments.

The mailings were begun in February 1944 and continued until the end of March. There were 927 questionnaires, or 31 per cent, returned by the first of June, which represents an excellent return when the wide dispersal of the armed forces and the constant movement of troops are considered. Early returns were largely from medical officers in the continental United States. The report may be considered in two groups. The first group consisted of the first 500 questionnaires received prior to April 20, mainly from medical officers in or near the United States. The second group consisted of 427 questionnaires received from April 21 to June 1, mainly from medical officers stationed at more distant posts.

All returned questionnaires were checked in against the mailing list. The postmark on the envelop was entered at the top of the questionnaire. Many officers preferred to sign their questionnaires, and their names were entered on the upper right hand corner of the returned questionnaire along with the postmark.

Questionnaires were divided into four groups for study on the basis of licensure or medical school graduation. In general, licensure was used since there was a section that dealt with licensure. However, recent medical graduates who entered the armed forces without a license to practice medicine were classified in the year they would normally have become licensed. Group 1 consisted of those licensed from 1937 to 1943. Group 2 consisted of those licensed during the years 1930 to 1936. Group 3 consisted of those licensed during the years 1920 to 1929, and Group 4, the oldest group, consisted of those licensed before 1920. There were the following number of returns in each group:

	Number	Per Cent
Group 1.....	400	43
Group 2.....	323	35
Group 3.....	163	18
Group 4.....	36	4
Total.....	927	100

Education

Greatest interest in postwar medical education was evident among the youngest officers, or in group 1. A number of men in this group have had their medical education curtailed by the war, so it is not surprising that 364, or more than 90 per cent, want some additional training. The requests for additional training include 15 who desire a three months course, 23 a three to six months course, 15 a six to twelve months course and 66 a year's course. A one to two year training period was requested by 104, and 96 wanted more than two years of training. Thus half of this entire group requests a year or more of postwar training. There were 45 who desired training of an undetermined period. Only 11 of the 400 in group 1, or 2.7 per cent, did not want additional training,

TABLE 1.—Educational

	Year of Licensure				Total
	Group 1, 1937 to 1943	Group 2, 1930 to 1936	Group 3, 1920 to 1929	Group 4, Before 1920	
Total number of replies counted...	400	323	163	36	927
Total number desiring additional training.....	364	233	112	10	719
3 months or less.....	15	34	17	3	69
3-6 months.....	23	36	38	5	102
6-12 months.....	15	43	10	..	68
1 year.....	66	50	16	2	134
1-2 years.....	104	30	7	..	141
More than 2 years.....	96	15	1	2	114
For undetermined period.....	45	30	23	7	105
Do not want additional training...	11	31	17	6	65
Undecided.....	4	3	2	..	9
No answer.....	21	51	37	11	120
Will seek specialty board certification.....	301	160	76	7	544
Do not want specialty board.....	81	150	73	25	329
Have specialty board and want training.....	1	16	5	..	22
3 months or less.....	15	31	14	2	62
For undetermined period.....	4	6	4	1	15
Have specialty boards and desire no training.....	4	34	27	8	73
Have specialty board and undecided about additional training.....	..	1	1	..	2

* Of this total, the institutions were named by 220 in group 1, 133 in group 2, 67 in group 3, and 11 in group 4.

while 4 of the group were undecided in the matter of postwar educational training and 21 failed to answer the question.

There was a great demand for qualifying for specialty board certification in group 1. More than three-fourths of the entire group, or 301, indicated that they would seek specialty board certification, while 81 definitely did not desire such certification.

A group of 20 have already been certified by the specialty boards, and most of them signified that they desired training of three months or more after the war. Only 4 certified specialists in this group did not want additional training.

Group 2 consists of men who are about 35-42 years of age and who were in practice five to twelve years before they entered military service. There were 323 in the group, of whom 238, or 74 per cent, expressed a desire for further educational training. There were 34 who wanted a three months course, 36 a three to six months course and 43 a six to twelve months course of instruction. Fifty men wanted a one year training period, 30 a one to two year training period, and 15 wanted more than two years. There were 30 men who indicated an undetermined period of instruction. Thirty-one, or 9.6 per cent, did not want any additional training. Three were undecided, and 51 gave no answer.

There were 87, or 27 per cent, of the men in group 2 who are at present qualified specialists. About two thirds of the qualified specialists in group 2 indicated additional training, of whom a majority favor training of three months or more. One third of the specialists do not desire further training. Medical officers licensed from 1920 to 1929 comprised a group of 168 men. About three fourths of group 3, or 112, marked a preference for additional training, of whom 55 wanted six months or less training. Seventeen desired no additional training and two were undecided. No answer was given by 37 men.

One third of group 3, or 51 men, were qualified specialists, of whom more than half did not want further training. Of the noncertified specialists in group 3 about half stated that they would seek certification and the other half would not.

Industrial Medicine

Group 4 was the oldest and smallest group, consisting of 36 men. About one third of the group were qualified specialists, most of whom did not desire further training. A scattering of men indicated that they desired training for relatively short periods of time. Six men did not want additional training.

There was less interest in industrial medicine (table 2) than was anticipated. In group 1, 226 men out of 400, or 56 per cent, stated they did not wish a position in industrial medical practice, but 137 were interested in that field of practice, of whom 11 desired a full time position and 126 a part time position. Men interested in industrial work were divided as follows: Ninety-six desired work in industrial surgery; 36 desired insurance work; 28 desired work in plant medical departments; 15 desired work in occupational disease control, and 10 desired work in other fields. There were 154, or 38 per cent, who preferred training in university courses and only 19, or less than 5 per cent, who preferred training in industry.

Group 2 showed a response similar to that of group 1 with regard to industrial medicine. About one third, or 108 men out of 323, expressed interest in industrial practice, of whom only 19 wanted full time positions and 89 part time appointments.

TABLE 2.—Industrial

	Year of Licensure				Total
	Group 1, 1937 to 1943	Group 2, 1930 to 1936	Group 3, 1920 to 1929	Group 4, Before 1920	
Total number of replies counted...	400	323	168	36	927
Total number wishing position in industrial medical practice.....	137	108	45	6	296
Full time.....	11	19	17	2	49
Part time.....	126	89	28	4	247
Undecided.....	3	6	1	..	10
Not wishing position in industrial medical practice.....	226	167	112	23	548
No answer.....	34	22	10	7	73
Type of work desired					
Plant medical department.....	28	26	15	4	73
Insurance.....	36	37	18	4	95
Occupational disease control...	15	8	6	1	30
Industrial surgery.....	96	68	26	2	192
Other fields.....	10	11	10	2	33
Prefer training to industry.....	19	16	9	..	41
No.....	220	234	123	30	607
Will attend university course.....	154	102	59	8	323
No.....	89	148	73	22	329

Various phases of industrial practice were selected by the following number of men: 68 in industrial surgery, 37 in insurance, 26 in plant medical department work, 8 in occupational disease work and 11 in other fields. University training was selected by 102 men, whereas only 16 preferred training in industry.

Medical officers in group 3 showed a greater interest in full time positions than the preceding groups. There were 45, or 27 per cent, interested in industrial medicine, of whom 17 desired full time positions and 28 wanted part time appointments. Interests varied as follows: Twenty-six wanted industrial surgery; 18 wanted insurance positions; 15 wanted plant medical department work; 6 wanted occupational disease control, and 10 wanted other fields of practice. There were 59, or 35 per

cent, who said that they would attend university training courses and 9, or 5 per cent, who would prefer training in industry.

The last group consisted of the oldest officers, and they showed little interest in industrial medical practice. Two men said that they would accept full time positions, and 4 men said they would accept part time positions.

Licensure and Practice

Licensure and practice formed the next section of the questionnaire, and the tabulation of the returned questionnaires (table 3) indicated that a large proportion of the medical

TABLE 3.—Licensure

	Year of Licensure				Total
	Group 1, 1937 to 1943	Group 2, 1930 to 1936	Group 3, 1920 to 1929	Group 4, Before 1920	
Total number of replies counted...	400	323	168	36	927
Planning to reengage in practice in previous locality after the war...	164	237	126	31	558
No.....	90	53	15	3	161
Indefinite.....	16	20	10	1	47
Blank.....	130	13	4	1	148
What is your preference as to					
Rural.....	30	13	3	..	46
Urban.....	177	95	43	8	323
Size of community to tend to practice in					
2,500-25,000.....	52	16	6	3	78
25,000-250,000.....	109	41	13	1	164
Over 250,000.....	43	15	9	2	69

officers had a great desire to return to practice in their former residence after the war.

The greatest dispersion of desires was noted in group 1. It showed 164, or 41 per cent, of the men planned to reengage in practice in their previous locality after the war. Ninety men indicated they would not return to their former locality; 16 were indefinite about their location, and 130 left the question blank. This is not surprising in view of the fact that a large number of men in group 1 went directly from hospital service into the armed forces.

More than one half of group 1, or 207, expressed a definite desire to go to a new locality after the war. There were 177 who wanted an urban community (over 25,000) and 30 who preferred a rural community. The size of communities varied as follows: Fifty-two wanted communities of 2,500 to 25,000; 109 wanted communities of 25,000 to 250,000, and 43 wanted communities of more than 250,000.

There were 237, or 73 per cent, of group 2, who wanted to return to the locality of their previous practice after the war, and 53, or 16 per cent, stated that they did not wish to return to their former residence; 20 were indefinite, and 13 failed to answer the question. New locations contemplated by men in group 2 were as follows: Sixteen wanted communities of 2,500 to 25,000; 41 wanted communities of 25,000 to 250,000, and 15 wanted communities of more than 250,000.

A still greater tendency of older officers to return to their former localities of practice was seen in groups 3 and 4. Eighty per cent of the men in group 3 and 85 per cent of the men in group 4 expressed a desire to reengage in practice in the community they left when they joined the armed forces. Those who desired to establish a practice in a new community selected urban rather than rural sites and preferred cities of 25,000 to 250,000.

Economic

Economic considerations were presented in the last section of the questionnaire and are shown in table 4.

A wide variety of answers were received from group 1. One hundred and forty-one, or 35 per cent, wanted general medical practice; 207, or 52 per cent, wanted full time specialty practice, and 52, or 13 per cent, desired part time specialty practice. There were 227, or 54 per cent, who would like to become associated in private practice with a group of physicians. Full time teaching or research was selected by only 2 men and part time teaching by 154. Practice on a full time salary basis was selected by 16, or 4 per cent, of group 1, and government medi-

cal service attracted only 20, or 5 per cent. The latter group was divided as follows: Army, 9; Navy, 3; U. S. P. H. S., 6; Veterans Administration, 1, and other services, 1.

Group 2 showed a greater desire to return to their former type of practice. There were 98, or 30 per cent, who selected general medical practice; 176, or 55 per cent, who selected full time specialty practice, and 49, or 15 per cent, who desired part time specialty practice. Again, there were a large number of men, 186, or 57 per cent of group 2, who indicated that they would like to become associated in private practice with a group of physicians. Three of the group would like to become full time teachers or research workers, and 28, or 9 per cent, mentioned a preference to practice on a full time salary basis. Governmental medical service attracted 33, or 10 per cent of group 2, who were distributed as follows: Army, 7; Navy, 2; U. S. P. H. S., 9; Veterans Administration, 10, and other

TABLE 4.—Economic

	Year of Licensure				Total
	Group 1, 1937 to 1943	Group 2, 1930 to 1936	Group 3, 1920 to 1929	Group 4, Before 1920	
Total number of replies counted...	400	323	168	36	927
Desire general practice.....	141	98	46	16	301
Specialty					
Full time.....	207	176	106	13	502
Part time.....	52	49	16	7	124
Private practice with a group of physicians.....	227	186	72	8	493
Plan to engage in research or teaching					
Full time.....	2	3	5	..	10
Part time.....	154	121	37	11	323
Do not plan to engage in research or teaching.....	208	169	103	18	498
No answer.....	36	30	28	3	97
Prefer to practice on full time salary basis.....	16	28	22	1	67
Total desiring government service.	20	33	29	11	93
Army.....	9	7	8	8	32
Navy.....	3	2	3	1	9
U. S. P. H. S.....	6	9	5	1	21
Veterans Administration.....	1	10	12	1	24
Others.....	1	5	1	..	7
Do not desire government service..	360	274	128	21	783
Undecided.....	12	12	8	..	32
Blank.....	8	4	3	4	19
Minimum monthly salary accepted					
Under \$200.00.....	..	2	..	..	2
\$200.00 to \$500.00.....	119	91	33	6	251
Over \$500.00.....	66	69	39	5	178
Not stated.....	210	155	90	25	480
Undecided.....	5	7	1	..	13
Willing to enter legislated area....	89	59	13	1	162
No.....	238	213	136	28	615
Blank.....	73	51	19	7	150
Subsidy for several months.....	82	47	17	1	147
No.....	135	116	53	12	316
Blank.....	183	160	98	23	464
Diagnostic facilities.....	121	83	32	4	240
No.....	80	59	22	4	165
Blank.....	199	181	114	28	522
Hospital facilities.....	130	91	30	4	255
No.....	77	53	21	3	154
Blank.....	193	178	117	29	517

services, 5. Two hundred and seventy-four men, or 85 per cent, expressed a desire not to remain in government service.

The replies from group 3 were similar to those from group 2. There were 46, or 27 per cent, who indicated general medical practice, 106, or 63 per cent, who desired full time specialty practice and 16, or 10 per cent, who expressed a wish to engage in part time specialty practice. Nearly one half, or 72 physicians, said that they would like to become associated in private practice with a group of physicians. There were 5 who planned to be full time research workers or teachers and 22, or 13 per cent, who preferred to practice on a full time salary basis. In this older age group medical service with the government attracted 29, or 17 per cent, as follows: Army, 8; Navy, 3; U. S. P. H. S., 5; Veterans Administration, 12, and other services, 1.

There was a strong tendency for the small number of physicians in group 4 to remain in government service. Eleven out of 36 wanted some type of government medical appointment. The Army was selected by 8, and the Navy, U. S. P. H. S. and Veterans Administration by 1 each.

ARMY

NEW HOSPITAL SHIPS GO INTO SERVICE

The War Department recently announced that ten new hospital ships are commissioned and in service, making a fleet of eighteen hospital ships with a total capacity of more than 10,000 patients. These will be used for the Army to evacuate the wounded American and Allied troops from France and from other combat zones. Under the direction of the Transportation Corps, Army Service Forces, the ten new hospital ships were converted from former army transports and cargo vessels by commercial shipyards. Six new hospital ships will be added to this fleet by the end of 1944. The average number of patients carried by each of the hospital ships is about 600. The twenty-four vessel mercy fleet, all operated under terms of the Hague Convention of 1907, will have a total patient capacity of more than 14,000, of which about 3,300 will be for ambulants, or "walking wounded." It is expected that some of the twenty-four hospital ships will be used in intratheater operation, in keeping with the War Department's plan for progressive evacuation of casualties.

The ten new ships and ports from which they sailed were the *John L. Clem* from New Orleans, the *Ernest Hinds* from San Francisco, the *Marigold* from Seattle, the *Larkspur* from Jacksonville, the *John J. Meany* from Boston and the *Dogwood*, the *Blanche F. Sigman*, the *Emily H. M. Weder* and the *Wisteria*, all from New York. The tenth ship is the *Mercy*, sailing from Los Angeles. This is a navy ship, manned by the Navy but operated for the Army.

The *Blanche F. Sigman* was named in memory of 1st Lieut. Blanche F. Sigman, Army Nurse Corps, who was killed in action on the Anzio beachhead Feb. 7, 1944. A native of Cambridge, Ohio, she joined the Army Nurse Corps in July 1942. The *Emily H. M. Weder* was named in memory of Major Emily H. M. Weder, a Regular Army Nurse since 1918, who died last February at Walter Reed General Hospital, Washington, D. C. Her home was in Sellersville, Pa.

The Army's present fleet of hospital ships includes the *Acadia*, the *Algonquin*, the *Chateau Thierry*, the *St. Mihiel*, the *Seminole*, the *Shamrock* and the *Thistle*. In addition the Navy owned and crewed *Comfort*, commissioned at Los Angeles in May, is operated for the Army. The six new hospital ships to be added by the end of 1944 are the *St. Olaf*, the *Jarrett M. Huddleston*, the *Charles A. Stafford*, the *Lewis Luckenbach*, the *Dorothy Luckenbach* and the *Hope*. The *Hope*, like the *Comfort* and the *Mercy*, will be operated by the Navy for the Army.

The Medical Department staffs the vessels, including the three navy operated ships, with army medical personnel, including surgeons and officers of the Army Nurse Corps.

In keeping with international treaties, the hospital ship at sea is instantly recognizable as a mercy ship. Its hull is painted white, a horizontal green band is painted the whole length of the ship on each side, a huge Red Cross is painted in the middle of the starboard and port sides, a Red Cross is painted on deck and others are painted on each side of the funnel. The entire vessel is equipped to provide electrical illumination, including lighted red crosses, from sunset to sunrise. It is unarmed and carries only the necessary crew and medical personnel, in addition to patients.

Operation of hospital ships by the Transportation Corps is directed in accordance with international practice under applicable treaties (particularly the Hague Convention of 1907) and supplemented by such regulations covering operation of United States army transports as are not in conflict with such treaties.

The civilian crew aboard a hospital ship is employed under civil service status by the Transportation Corps. The master is in supreme command of the ship and all persons on board who sign the ship's articles. He is responsible for and has full control of operation, navigation and the safety of the ship as required by navigation laws and rules of the United States; safe delivery of passengers and cargo at destination, and discipline and efficiency of the crew.

The senior medical officer aboard a hospital ship is the ranking surgeon and is permanently stationed aboard the vessel as hospital ship commander.

CIVILIAN SPECIALISTS APPOINTED TO OFFICE OF SURGEON GENERAL

Nineteen civilian consultants were recently appointed to the Office of the Surgeon General as advisers to the Army Medical Department on problems of internal medicine. The appointees for the respective specialties are: gastroenterology, Dr. Walter L. Palmer, University of Chicago, and Dr. Chester M. Jones, Harvard University; heart disease, Dr. Paul D. White, Massachusetts General Hospital, Boston, and Dr. Robert L. Levy, Columbia University; skin diseases, Dr. Joseph G. Hopkins, Columbia University, and Dr. John H. Stokes, director, Institute for Control of Syphilis, University of Pennsylvania; infectious diseases, Dr. Colin M. MacLeod, New York University, Dr. W. Barry Wood Jr., Washington University, St. Louis, Dr. Charles E. Smith, Stanford University, and Dr. Caroline B. Thomas, Johns Hopkins University; chemotherapy, Dr. Chester S. Keefer, Boston University; allergy, Dr. Robert A. Cooke, Cornell University, and Dr. Francis M. Rackemann, Massachusetts General Hospital, Boston; tropical diseases, Dr. Robert B. Watson, principal malariologist, Tennessee Valley Authority, Dr. James A. Shannon, New York University, Dr. Harold W. Brown, Columbia University, and Dr. Mark F. Boyd, director of the Station for Malaria Research, Tallahassee, Fla.; tuberculosis, Dr. James J. Waring, University of Colorado, and Dr. James B. Burns Amberson Jr., Columbia University.

AIR SURGEON'S CONVALESCENT PROGRAM

Col. Henry M. Bailey was recently designated commanding officer of the new Personnel Distribution Command within the Army Air Forces, consolidating within one organization various related activities in connection with the processing of AAF personnel going overseas and returning from combat. The command will include supervision of the AAF redistribution center, through which all Air Forces personnel return to this country from assignments abroad, and the seven AAF convalescent centers now operating in the United States. The command also will operate a number of rest camps, the first of which was recently established at Lake Lure, N. C. The two Air Forces overseas replacement depots at Greensboro, N. C., and Kearns, Utah, also will be operated by the personnel command. Personnel allotted to redistribution stations, replacement depots and convalescent centers will be reassigned to the new command. Members of the AAF returning from overseas first report to one of the redistribution stations, where they are interviewed and classified for new duties or, if necessary, sent to one of the convalescent centers for thorough physical reconditioning and for special training by which the AAF provides new opportunities for men who have been disabled in combat.

The convalescent centers have been conducted by the Air Service Command and the First Air Force and are located at St. Petersburg, Fla.; Pawling, N. Y.; Fort George Wright, Washington; Fort Logan, Colorado; Albuquerque, N. M.; Nashville, Tenn., and Coral Gables, Fla. The Air Surgeon reported that 80 per cent of the patients at the convalescent centers since December 1942 have been returned to duty. More than thirty courses of vocational training are now available in these centers for returned soldiers. The Air Surgeon also reports that thirty million man-hours have been spent in convalescent training since its organization.

The AAF convalescent training program also takes care of the soldier who is to be discharged from service and is designed to assist the man in making the best possible physical, social and economic adjustment on leaving the Army. In many cases suitable employment is found for him in aircraft industries.

The Air Surgeon's Convalescent Training Program was recently cited by the American Academy of Physical Education. The text of the citation read "Shortly after the entrance of our country into this war the Office of the Air Surgeon took the initiative in organizing and promoting a Convalescent Training Program in the hospitals of the Army Air Forces. With disregard for precedent they pushed this program forward rapidly and effectively; they engaged in pertinent experimental work to clarify some of the more debatable problems related to reconditioning of the ill and injured, and pioneered the establishment of this movement in this country. For making avail-

able to the sick and disabled of our armed forces the latest discoveries and the finest services of both medicine and physical education, the American Academy of Physical Education takes pleasure in citing the Convalescent Program of the Office of the Air Surgeon."

ARMY AWARDS AND COMMENDATIONS

Colonel Maurice C. Pincoffs

Col. Maurice C. Pincoffs, chief consultant in medicine in the Southwest Pacific and former professor of medicine of the University of Maryland School of Medicine, has been awarded the Legion of Merit for experiments in malaria control. The experiments were conducted on an island north of Australia, and most of those who participated in them were volunteers. Among them was a company of engineers. Dr. Pincoffs graduated from Johns Hopkins University School of Medicine, Baltimore, in 1912 and entered the service April 20, 1942. He was made chief of professional services in the Southwest Pacific in January 1943.

Colonel Luther R. Moore

The War Department recently announced the award of the Legion of Merit to Col. Luther R. Moore. The following citation accompanied the award: "As Surgeon for the Alaskan Department from December 1941 until March 1944 he established a highly efficient medical service for this command in spite of handicaps imposed by trying climatic conditions and the difficulties incident to hasty occupation of uninhabited islands during bad weather and with inadequate shelter. By his extensive professional knowledge, sound foresight and effective planning he provided adequate medical supplies throughout the command in spite of the wide dispersal of posts and limited transportation facilities." Dr. Moore graduated from the University of Illinois College of Medicine, Chicago, in 1912 and entered the service July 5, 1918.

Major General Morrison C. Stayer

The Distinguished Service Medal was recently awarded to Major Gen. Morrison C. Stayer. The citation accompanying the award read as follows: "While serving as Chief Health Officer, the Panama Canal, from September 1939 to February 1944, in the face of unprecedented difficulties, his untiring efforts and wise judgment resulted in the maintenance of exceptionally high standards in the Canal Zone and in the cities of Panama and Colon, and in the provision of adequate hospital facilities and personnel. His genius for organization proved invaluable to the government. The manner in which he met all responsibilities placed on him made possible greatly improved health conditions locally and played a large part in the outstanding results achieved in the field of health and sanitation. By his qualities as an officer, a very difficult situation dealing with standards of sanitation was handled in a superior manner. He rendered invaluable service in the recruiting of laborers from Central and South America for vital defense programs in the Caribbean area." Dr. Stayer graduated from Jefferson Medical College of Philadelphia in 1906 and entered the service May 31, 1909.

LST TRANSFORMED INTO HOSPITAL SHIP

The versatile LST has been transformed into a hospital ship to "carry scientific surgical care to the wounded rather than the wounded to surgical care." The new use of the landing ship in amphibious warfare was employed in the attack on the Hollandia area of Dutch New Guinea without any loss of the LST's assault power. The LSTs become hospitals only after they have disgorged their cargo of tanks and troops on the beach. Then surgical teams take over. Three doctors and thirteen hospital corpsmen were assigned to each dual purpose LST used in the Hollandia attack. Wounded go to starboard troops quarters. Stretcher cases are carried in over the ramp to the huge supply compartment and then to the port troop compartments, which have been set up as operating rooms and surgical wards.

MISCELLANEOUS

THREE MEMBERS OF TYPHUS COMMISSION RECEIVE AWARDS

Three medical officers were recently awarded medals for "exceptionally meritorious" services for their work with the United States of America Typhus Commission for the control of typhus among United States armed forces serving overseas. They are Capt. Charles S. Stephenson, U. S. Navy, the commission's first director; Dr. Rolla E. Dyer, Assistant Surgeon General of the U. S. Public Health Service, and Brig. Gen. James S. Simmons of the U. S. Army. The citations which accompanied these awards follow:

CHARLES S. STEPHENSON, Rear Admiral, U. S. Navy, for "exceptionally meritorious service in connection with the work of the United States of America Typhus Commission. In December 1942 he was appointed the first director of the United States of America Typhus Commission. Previous to this formal appointment Admiral Stephenson, then Captain (Medical Corps), U. S. Navy, had been a member of the original group which formulated plans for the commission. During a number of months he devoted his special knowledge, energy and abilities to development of detailed plans for the operation of the commission abroad and led the first group to the initial theater of operations overseas, establishing field headquarters in Cairo, Egypt. After the arrival of the commission abroad he at once arranged for a suitable laboratory and organized extensive surveys of regions of the Middle East. While engaged in these labors of administration and field work he suffered an attack of illness which made it necessary for him to relinquish the position of director. To his devotion and effective activity is due the energetic initiation of the work of the commission in large and extensive foreign theaters of operation."

JAMES S. SIMMONS, Brigadier General, U. S. Army, for "exceptionally meritorious service in connection with the work of the United States of America Typhus Commission. In August 1942 General Simmons, then Colonel, Medical Corps, realizing the extreme hazard that typhus fever presented to the military forces operating in the many regions of the world in which it is endemic, formulated plans which ultimately resulted in the establishment of the United States of America Typhus Commission. He was the founder of the commission and it was due to his vision and broad conceptions that the commission was developed as a united undertaking between the Army, Navy and U. S. Public Health Service for the purpose of protecting the armed forces from typhus fever and preventing the introduction of the disease into the United States. Although already burdened with extensive duty and responsibility, he has devoted his energy, knowledge and ability to the development of all phases of the program and activities of the commission. His contribution to the work of the commission has been of paramount importance."

DR. ROLLA E. DYER, Assistant Surgeon General, U. S. Public Health Service, for "exceptionally meritorious service in connection with the work of the United States of America Typhus Commission. Dr. Dyer, a noted authority on typhus fever in this country, has been one of the chief guides and mainstays of the United States of America Typhus Commission since the first discussions from which the conception and establishment of the commission proceeded. Long a contributor to knowledge of typhus fever through his own research and for many years a leader in public health administration, he has brought to the benefit of the commission special knowledge, sound judgment and effective assistance. At all times since the first meetings of the original group whose plans were the basis for the development of the commission, he has given constant and unstinted service to the commission. In addition to his contribution of special knowledge and his influence on the activities of the commission, he has placed at the disposal of the commission invaluable laboratory accommodations and research assistance at the National Institute of Health for the study and utilization of an unequalled collection of typhus material which has been sent back to this country by the members of the commission working abroad."

PRESCRIPTIONS FOR HEAVY CREAM

All prescriptions for heavy cream must be approved by a local public health officer or secretary of a county medical society, according to a recent announcement by the War Food Administration. WFO 13 prohibits the sale of heavy cream containing more than 19 per cent butterfat. The order provided that physicians might prescribe such cream in cases in which it was important to the health of their patients. This action is expected to limit the use of rich cream to rare cases when required. Beginning August 1, the sale or delivery of so-called filled cream, containing more than 19 per cent of all kinds of fat, will be prohibited. The War Food Administration stated that this action represents further effort to save milk solids not fat for more essential wartime uses.

Effective June 7 this action also: 1. Broadens present definition of cream products to include serrated (air expanded) cream, reconstituted cream and those cream products to which sugar, condiments, spices, flavoring or similar ingredients have been added. This restriction is designed to prevent dealers from marketing a product containing more than the allowed percentage of butterfat by varying its composition slightly. 2. Tightens present restrictions on heavy cream or cream products by specifically prohibiting their sale to or use by hotels, restaurants and other public eating places, except for making ice cream. Under another order (WFO 8) the use of cream or other milk solids in frozen dairy foods production is limited.

VOCATIONAL WAR PRODUCTION TRAINING COURSES

The War Manpower Commission reported recently that a total of 2,935 veterans of this war were taking vocational war production training courses through the period from January 1 to April 1. Most of them were reported in training in radio, machine operation, welding and aircraft occupations. These veterans constitute the first large "class" of veterans of this war to enter training after their war service. The veterans were in training in a majority of the states in training programs coordinated by WMC's Bureau of Training and administered by the U. S. Office of Education of the Federal Security Agency, in cooperation with state and local boards of education. Of the 2,935 veterans enrolled, 2,332 were employed in war production jobs and were in training "supplementary" to their employment. The remainder were in "preemployment" training preparing for war jobs. California had the largest number of veterans in training in connection with employment in war industries, with a total of 660 for the three months.

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

(Continuation of list in THE JOURNAL, June 17, page 500)

ILLINOIS

Belmont Community Hospital, Chicago. Capacity, 125; admissions, 3,778. Mrs. Gertrude F. Seofield, Superintendent (2 interns, July 1).

MINNESOTA

Bethesda Hospital, St. Paul. Capacity, 180; admissions, 6,083. Rev. L. B. Benson, Superintendent (interns).

WISCONSIN

St. Michael Hospital, Milwaukee. Capacity, 172; admissions, 5,002. Sister M. Alphonse, Superintendent (intern, October 1).

THIRD ARMY-NAVY E AWARD GRANTED PICKER X-RAY CORPORATION

The Picker X-Ray Corporation, New York, has recently been granted the third Army-Navy E award. This organization is the sole manufacturer of the Army Field X-Ray Unit and was the first x-ray industry to receive the Army-Navy E award, Aug. 28, 1942, its first star July 10, 1943 and its second star Feb. 26, 1944.

ORGANIZATION SECTION

PROCEEDINGS OF THE CHICAGO SESSION

MINUTES OF THE NINETY-FOURTH ANNUAL SESSION OF THE AMERICAN
MEDICAL ASSOCIATION, HELD IN CHICAGO, JUNE 12-16, 1944

HOUSE OF DELEGATES

First Meeting—Monday Morning, June 12

The House of Delegates convened in the Red Lacquer Room of the Palmer House and was called to order at 10:15 a. m. by the Speaker, Dr. H. H. Shoulders.

Preliminary Report of the Reference Committee on Credentials

The following preliminary report of the Reference Committee on Credentials was submitted by Dr. Deering G. Smith, Chairman: The Reference Committee on Credentials has the honor of reporting an early registration of 150 delegates at this time.

Roll Call

A motion by Dr. Allen H. Bunce, Georgia, duly seconded, to dispense with the formal roll call and accept the registration of the delegates was not carried, since the roll would have to be called in order to proceed with a ballot on the Distinguished Service Award.

The Secretary called the roll and announced that a quorum was present.

Supplementary Report of the Reference Committee on Credentials

Dr. Deering G. Smith, Chairman, reported a registration of 159 delegates at this time.

Distinguished Service Award

Dr. Roger I. Lee, Chairman of the Board of Trustees, presented a report of the Board, as follows:

The Committee on Distinguished Service Award of the American Medical Association submitted five names to the Board of Trustees.

In accordance with chapter VI, section 5, of the By-Laws, the Board has selected by ballot the following names for presentation to the House of Delegates in alphabetical order: Dr. Isaac A. Abt, Chicago; Dr. George Dock, Pasadena, Calif.; Dr. Simon Flexner, New York.

The Speaker appointed as tellers Drs. Arthur J. Bedell, Section on Ophthalmology; E. N. Roberts, Idaho; Henry S. Ruth, Section on Anesthesiology; Benjamin F. Cook, Vermont, and John Z. Brown, Utah.

The tellers spread the ballot, and the Secretary announced that one hundred and fifty-three votes had been cast, of which Dr. Abt received forty-nine, Dr. Dock fifty-two and Dr. Flexner fifty-two.

The Speaker announced that, since no one nominee had received the majority of the votes cast, the name of the one receiving the lowest number of votes would be dropped and ballots prepared for Drs. Dock and Flexner.

The Secretary stated that one hundred and fifty-seven votes had been cast, of which Dr. Dock received eighty-eight and Dr. Flexner sixty-nine.

The Speaker declared Dr. George Dock, who had received the majority of the votes cast, to be elected by the House of Delegates to receive the Distinguished Service Award of the American Medical Association and directed the Secretary to inform Dr. Dock of this action.

Adoption of Minutes of Chicago Session in 1943

It was moved by Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. H. B. Everett, Tennessee, and carried, that the Proceedings of the Chicago Session of the House of Delegates held in 1943 be adopted as printed.

Address of the Speaker, Dr. H. H. Shoulders

The Vice Speaker, Dr. R. W. Fouts, Nebraska, presided while the Speaker read his address, which was referred to the Reference Committee on Reports of Officers:

Mr. Speaker, Members of the House of Delegates and Guests:

First, I wish to express to you my deep sense of appreciation of the privilege of addressing you again as your presiding officer.

The first session of the House over which I had the honor of presiding was the extraordinary session held here in Chicago in 1938. It was called for the purpose of considering serious problems which had arisen from an emergency situation. It has seemed to me that the House has been confronted with issues of tremendous importance and magnitude in every session since that time. Certainly no one can say that conditions in the nation have been normal and, most of the time, the conditions have been those which are classed as emergencies.

Many of the problems you have faced and acted on were of such a nature as to provoke division of opinion and controversy. At least some of the issues have touched the very foundation stones of our temple of freedom. The conditions to which I refer were not limited to the field of medicine. On the contrary they were widespread—so widespread in fact as to touch all the people in every economic level.

It has been necessary, therefore, for you to perform your tasks in an atmosphere which, to say the least, was highly charged—an atmosphere in which a spark might set off an explosion. However, no explosion has occurred. On the contrary, your actions are characterized by a remarkable degree of unanimity. It seems to me that one can observe three outstanding features of your record worthy of reference now and always. First is your record of action on all issues which touched in any way the freedom and dignity of the individual American citizen. Your actions have been consistently on the side of freedom. You have detected the presence of the *fundamental issue*, even when it appeared in such a disguise as to escape the observation of many persons.

The second feature of your record to which I refer is this: When a question has been presented to you for action the exact answer to which is not known at the moment by any one—questions which in their very nature require experimentation and research over a period of time to find the proper answer—you have not assumed to know the answer at that moment, nor have you dodged the issue. In such situations you have taken the sound course of laying down fundamental principles to serve as a guide in the conduct of experimentation and research on the questions at issue until the proper answers are found.

A third feature is the attitude you have displayed toward the indigent and so-called underprivileged groups in their relationship to medical care. It is in this connection that your actions have been misunderstood most often. The fact is, you have never taken action in opposition to a proposed government benefit to these groups except when the proposed medical benefit contained or was coupled with a threat to the freedom

and dignity of the individual citizen. You have held to the idea that the achievement of individual freedom in this country is, within itself, the greatest single benefit ever established for the welfare of mankind. You have held to the view that the general welfare which grew out of this state of individual freedom is a benefit not to be sacrificed nor bargained away in exchange for any other form of benefit, and especially one not proved.

I have never thought it appropriate for one in my position to speak on any question which may become an issue before the House. However, I don't think it will be a violation of such a policy for me to make brief reference to an alleged "challenge" to the profession (*Medical Care*, February 1944, p. 11). In reality the "challenge" is to this House of Delegates, because you are the only representative body of doctors in position to answer any such challenge to the profession.

The so-called challenge is made by an active proponent of radical change in our American system of medical practice. It is to the effect that the very high quality of medical care which all admit is being received by the soldiers and sailors of our armed forces everywhere is proof that such a regimented system of medical care should be adopted and enforced by the federal government for all the people. It is not at all surprising that such a suggestion should be made from the source it comes. Nor is it surprising at all that the author failed to mention several features of the military system. He did not mention the fact that in this system the patients and the doctors ARE BOTH REGIMENTED. He did not mention that patients in this instance are tagged and sent or ordered to a certain institution for service, that they are required to accept whatever service is provided and that they continue to be under military discipline even as patients. The author of this challenge attempts to carry forward the obvious deception that the medical profession can be regimented without at the same time regimenting the patients also. He forgets that you have stood for freedom of the patient first, not just for the freedom of the doctor. He forgets, or at least does not mention the fact, that soldiers both medical and combatant have sacrificed their personal freedom for the moment, as they are willing to sacrifice their lives, for the purpose of winning a war to make freedom secure; that they do not make this sacrifice merely to demonstrate what, to some, may appear to be an ideal way of life.

Most important of all, he who would apply a military regimen to civilian life forgets that the judgments and the skill brought to bear on the medical needs of our military forces are fundamentally the product of our civilian system of medical training and practice, in the development of which the policies adopted by this House of Delegates are entitled to no small measure of credit. He does not mention the numerical ratio between doctors and patients in the Army, nor does he make any reference at all to the cost of medical care under military administration.

I call attention to this challenge for the purpose only of emphasizing again that the proponents of radical change are as clever, persistent and deceptive as they are fundamentally unsound.

Thanks to the National Physicians Committee, we are now in possession of dependable data which show conclusively that when people understand the full significance of proposed radical changes they are, in the main, opposed to their adoption. The same reports show also that our profession has a much higher standing in the estimation of the people than even we imagined.

In conclusion, I wish to remind you of another item in the record. In the first address I ever made to you I borrowed an expression from Voltaire to express a sentiment to which I still subscribe. That expression is "I wholly disagree with what you say but will defend with my life your right to say it." I have not changed the attitude thus expressed, although I do not expect to disagree with what you have to say, nor shall I express an opinion on any issue which you are to decide. The decisions reached by the House are your sole responsibility. My duties are simply to cooperate with you in your deliberations to the end that a majority opinion is always expressed after deliberation.

Reference Committees

The Speaker, before announcing the personnel of the Reference Committees, asked and received permission, on motion of Dr. William Weston, Section on Pediatrics, seconded by Dr. Walter E. Vest, West Virginia, and carried, to name three additional reference committees, namely the Reference Committee on Executive Session, the Reference Committee on Postwar Planning and the Reference Committee on War Participation. The personnel of the Reference Committees as appointed by the Speaker is as follows:

SECTIONS AND SECTION WORK

L. W. Larson, Section on Pathology and Physiology, Chairman	Jean Paul Pratt, Section on Obstetrics and Gynecology
William Weston, Section on Pediatrics	J. Archer O'Reilly, Section on Orthopedic Surgery
	R. D. Bernard, Iowa

RULES AND ORDER OF BUSINESS

William R. Brooksher, Chairman, Arkansas	Forrest L. Loveland, Kansas
Thomas F. Thornton, Iowa	Thomas A. Foster, Maine
	Edward N. Ewer, California

MEDICAL EDUCATION

Wilburt C. Davison, Chairman, North Carolina	Leon J. Menville, Louisiana
Thomas S. Cullen, Maryland	Charles H. Pluifer, Illinois
	Francis F. Borzell, Pennsylvania

LEGISLATION AND PUBLIC RELATIONS

Thomas A. McGoldrick, Chairman, New York	H. G. Hamer, Indiana
Lloyd Noland, Alabama	William R. Molony Sr., California
	Robert L. Anderson, Pennsylvania

HYGIENE AND PUBLIC HEALTH

Don F. Cameron, Chairman, Indiana	R. C. Williams, U. S. Public Health Service
Walter W. King, Colorado	Stanley H. Osborn, Section on Preventive and Industrial Medicine and Public Health
Stephen E. Gayin, Wisconsin	

AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

Raymond L. Zech, Chairman, Washington	Harry V. Paryzek, Ohio
L. G. Christian, Michigan	Walter E. Vest, West Virginia
	Charles E. Mongan, Massachusetts

REPORTS OF OFFICERS

George W. Kosmak, Chairman, New York	Thomas A. Pitts, South Carolina
Carl R. Steinke, Ohio	Walter G. Plippen, Massachusetts
	Arthur S. Risser, Oklahoma

REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Edwin S. Hamilton, Chairman, Illinois	J. B. Lukins, Kentucky
Olin H. Weaver, Georgia	Robert E. Schluter, Missouri
	Francis J. Savage, Minnesota

CREDENTIALS

Deering G. Smith, Chairman, New Hampshire	G. Henry Mundt, Illinois
H. B. Everett, Tennessee	A. P. Nahtwey, North Dakota
	Thomas M. Brennan, New York

MISCELLANEOUS BUSINESS

Henry A. Luce, Chairman, Michigan	Lucius F. Donohoe, New Jersey
Charles G. Strickland, Pennsylvania	Robert A. Peers, California
	Robert H. Hayes, Illinois

EXECUTIVE SESSION

L. A. Buie, Chairman, Section on Gastro-Enterology and Proctology	Charles H. Henninger, Pennsylvania
Thomas P. Murdock, Connecticut	Walter B. Martin, Virginia
William A. Mulherin, Georgia	E. H. Cary, Texas
	James M. Flynn, New York

WAR PARTICIPATION

James R. McVay, Chairman, Missouri	James P. Wall, Mississippi
Edward Jelks, Florida	Andrew F. McBride, New Jersey
	William D. Johnson, New York

POSTWAR PLANNING

Walter F. Donaldson, Chairman, Pennsylvania	William A. Coventry, Minnesota
George F. Lull, U. S. Army	Henry R. Viets, Section on Nervous and Mental Diseases
Harold W. Smith, U. S. Navy	

TELLERS

Arthur J. Bedell, Section on Ophthalmology	Henry S. Ruth, Section on Anesthesiology
E. N. Roberts, Idaho	Benjamin F. Cook, Vermont
	John Z. Brown, Utah

SERGEANTS-AT-ARMS

Frank E. Reeder, Michigan	Forrest J. Pinkerton, Hawaii
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In Memoriam

The Speaker resumed the chair.

In accordance with the established custom of the House of Delegates of taking official notice of the death of Fellows who have served the Association in official capacities, either as members of the House or as officers of the Association, the Speaker requested the Vice Speaker to call the roll of those who had passed away since the House met in June of 1943.

The Vice Speaker read the roll as follows:

(The dates following the names indicate years of service in the House or as officers of the Association.)

Allen B. Anderson, Nebraska, 1903.
John R. Ballinger, Illinois, 1918.
Lewellys F. Barker, Maryland, 1909. First Vice President, 1916.
Arthur Dean Bevan, Chicago, Section on Surgery and Anatomy, 1902-1903. President-Elect, 1917-1918; President, 1918-1919.
Ross B. Bretz, U. S. Army, 1934; 1935 Special Session.
Horace J. Brown, Nevada, 1923; 1929; 1938; 1938 Special Session; 1941.
Wright Clarkson, Virginia, 1935-1936; 1938-1940.
Clifford U. Collins, Illinois, 1912.
William Moody Cunningham, Alabama, 1926-1927.
Roy P. Forbes, Colorado, 1931.
James A. Gage, Massachusetts, 1908; 1910.
James Grassick, North Dakota, 1913.
Oliver D. Hamlin, California, 1905; 1909; 1911-1912; 1916; 1926.
Robert A. Hatcher, New York, Section on Pharmacology and Therapeutics, 1917.
Alexander A. Higgs, Idaho, 1911.
Thomas Hubbard, Ohio, 1904.
William H. Humiston, Cleveland, Section on Obstetrics and Diseases of Women, 1902.
Wilson Johnston, Washington, 1911.
Jacob C. Kraft, Illinois, 1916-1917.
Louis Leroy, Tennessee, 1903.
Frank R. Makinson, California, 1940.
Curtis C. Mechling, Pennsylvania, 1932-1933; 1936-1939.
Francis M. McCallum, Missouri, 1926; Section on Genito-Urinary Diseases, 1915.
Arthur T. McCormack, Kentucky, 1908-1914; 1916-1917; 1919-1931; 1935 Special Session; 1937-1943.
J. Harris Pierpont, Florida, 1908-1909.
William W. Roblee, California, 1937.
John L. Rothrock, Minnesota, 1921; 1923-1926; 1928.
Walter G. Schulte, Utah, 1934.
Frank C. Sibley, Illinois, 1917.
Virgil E. Simpson, Kentucky, 1913; 1932-1943.
Andrew Sloan, New York, 1935 Special Session.
Halbert G. Stetson, Massachusetts, 1904; 1912-1914; 1916-1932.
Walter S. Stewart, Pennsylvania, 1922.
Willard J. Stone, Toledo, Ohio. Section on Practice of Medicine, 1918.
Walter W. Strang, New York, 1911.
Frank Warner, Ohio, 1902-1903.
Joseph L. Wicks, Wyoming, 1905.
William T. Wootton, Arkansas, 1917-1918; 1924.

On motion of the Vice Speaker, seconded and carried, the House stood in silent tribute to the memory of those of its members and of officers of the Association who had died since the Chicago session of the House in 1943.

Address of the President, Dr. James E. Paullin

The Speaker presented the President of the Association, Dr. James E. Paullin, Atlanta, Ga., who delivered the following address, which was referred to the Reference Committee on Reports of Officers:

Mr. Speaker and Members of the House of Delegates:

First, permit me to express my deep appreciation of the honor conferred on me by electing me to the highest office within the gift of this Association. Occupying the office of President of the largest and best medical association in the world has made me keenly conscious of the responsibilities which rest now on the shoulders of the medical profession and which have been greatly multiplied by the undreamed of demands made not only on the officials of the American Medical Association but also on the members of each of its constituent state and territorial associations. These demands for increased activity made necessary by our participation in the war effort have been assumed with a willingness which is characteristic of all patriotic Americans. During my term of office as President-Elect and as President I have sought the advice and counsel of many members of the House of Delegates as well as of the various councils, bureaus, committees and officers of our organization. To each and all grateful acknowledgment is made for their help and for their sympathetic understanding of a common interest in the problems facing our people.

During the past year it has been impossible for me to accept many of the generous invitations extended by state medical associations and other medical gatherings to attend their meetings as a representative of the American Medical Association. Difficulties of travel have made some of these visits impossible; the chief reason for declining, however, has been the increased duties and responsibilities added to this office by the House of Delegates in making the President a member of the Council on Medical Service and Public Relations and of the Postwar Planning Committee. These additional responsibilities, together with those already a part of the ex officio duties, have required that a greater amount of time be given to what I have considered the most important activities of this Association. The new council and the new committee have dealt with many unexplored problems created by the present emergency.

I should like to direct your attention to certain parts of the reports submitted to this body by the Board of Trustees, the Council on Medical Education and Hospitals, the Council on Medical Service and Public Relations, the War Participating Committee and the Postwar Planning Committee. These reports, as well as those of all of the councils, bureaus and committees, are examples of much thought and time given by capable physicians to the solution of some of the present day medical problems as well as constructive planning for greater problems of the near future. The results achieved have been accomplished despite the almost hysterical demands from some sources for immediate action on difficult situations which have required mature deliberation for their solution. Each of these committees or councils brings to you recommendations which have been agreed on only after careful consideration of the effect which their adoption will have on the ultimate service which the medical profession can render to the continued good health and general well being of the American people. My intimate association with these committees permits me in this address to emphasize some of their objectives.

WARTIME GRADUATE MEDICAL MEETINGS

The Wartime Graduate Medical Meetings organized for the purpose of continuing postgraduate instruction to those physicians who have joined the military services have been remarkably successful. This effort, sponsored by the American Medical Association in cooperation with the American College of Surgeons and the American College of Physicians, has been most useful in maintaining an intimate contact between civilian physicians and those in the military service. From the experience gained in promoting this type of instruction it is believed that there will evolve from this experiment a worthwhile pattern for continuous postgraduate medical education of the future. The faculty conducting these courses of study consists of 30 consultants and 1,650 teachers who visit Army and Navy hospitals over the entire United States and give programs consisting of clinics, ward rounds, lectures, demonstrations, round table discussions and clinical pathologic conferences covering the entire field of laboratory medicine, clinical medicine, surgery, roentgenology and all other specialties. Such courses of instruction, lasting from one to five days, have the approval and support of the Surgeons General of the Army, Navy and Public Health Service. At the end of this year it is believed that every military hospital in this country will have had given to its personnel one or more of these courses. This type of instruction carried to the smaller hospitals, distant removed from medical centers, points the way for the development of more effective postgraduate instruction of the future in that it will decentralize much of this type of teaching from the large medical centers.

POSTWAR PLANNING

The War Participating Committee and the Postwar Planning Committee have submitted important reports, the one dealing with present problems and the other for the development of future medical service when hostilities cease. The War Participating Committee serves a most useful purpose, particularly as an active liaison committee between the American Medical Association and various federal agencies.

The Postwar Planning Committee has made certain recommendations to the Board of Trustees which will be submitted for your approval. It is my desire to stress what I conceive

to be a great duty and function of this the American Medical Association in implementing these recommendations.

The Postwar Planning Committee and the Council on Medical Education and Hospitals of the American Medical Association, in cooperation with the Association of American Medical Colleges and the American and Catholic hospital associations, is perfecting a plan whereby it will be possible to furnish information to those physicians who desire it, where additional medical training may be obtained when they are discharged from the military service. Such a program contemplates providing assistant residencies, residencies, fellowships, refresher courses, postgraduate courses and training in the various specialties. The type of instruction to be made available will depend to a great extent on the answers which are now being received to a questionnaire which was sent to members of the profession who are now on duty with the Army, the Navy and the Public Health Service. Other groups vitally interested in the development of this program are the American College of Surgeons, the American College of Physicians, the Advisory Board of Medical Specialties, national and state boards of licensure, as well as the United States Veterans Administration, the United States Army, the Navy and the Public Health Service. On each one of these there rests a responsible part in planning for the quality and the quantity of medical service which can be made available to the American people when the war is over. Such a program visualizes the necessity of providing further training for the 20,000 to 25,000 younger physicians now in the military service who have never engaged in the private practice of medicine. Responsibility for the accumulation, evaluation and codification of these data is placed with the Council on Medical Education and Hospitals. The Postwar Planning Committee has already recommended to the Board of Trustees that there be established in Chicago a bureau which will provide information to physicians discharged from the military service concerning communities in need of or who desire certain types of medical service. This bureau, in cooperation with state and county societies, can accumulate information concerning the available facilities for the practice of medicine in many communities and can serve a most useful purpose in the better distribution of physicians in the United States. I strongly urge on the House of Delegates that this recommendation be given your earnest consideration.

THE SUPPLY OF MEDICAL STUDENTS

The attention of the House of Delegates is directed to the serious situation which is faced by our medical schools in providing a constant flow of physicians to supply civilian needs. The accelerated medical training program, participated in by all medical schools, contemplates the graduation of approximately 6,000 students each year. At the beginning of this program 55 per cent of the places were to be filled by the Army, 25 per cent by the Navy and 20 per cent by women, physically disqualified men and those deferred by Selective Service. This was bad enough, but a recent directive from the headquarters of Selective Service, in which after July 1, 1944 there will be no deferment for premedical students, stops abruptly the entrance in 1945 of practically all desirable students who are not either physically disqualified or women to whom we can look in the near future to supply medical care for civilian needs. When it is realized that there is already an annual deficit of at least 2,200 physicians caused by death or forced retirement from civilian practice beyond the 1,200 who graduate with deferred classification, it can be readily seen that a very serious situation will soon face us. Already the Council on Medical Education and Hospitals, and the Procurement and Assignment Service, have been most active in opposing such a directive, particularly as it concerns the premedical students, but I regret to report that little progress has been made. So hazardous is this situation for the health and welfare of the American people that a special report will be presented by some of the official bodies of the American Medical Association for action by the House of Delegates at this session. I cannot urge too seriously that the House of Delegates give this problem most careful consideration with a view not only to the attitude that is to be adopted but to the manner in which the decision of the House of Delegates is to be impressed on the governmental authorities of the United States.

REHABILITATION OF THE DISABLED

Consideration should be given to an effort looking toward the unification or to the establishment of a cooperative program directed to the rehabilitation of those discharged from the military services and for those who will need this type of care resulting from accidents or illnesses occurring in civilian life or industrial occupation. At the present time there are many agencies concerned or have already established programs to deal with these problems. The Army, the Navy, the Air Forces, the Veterans Administration, Selective Service, the War Man Power Commission and numerous industrial organizations have established installations for rehabilitation. With so many agencies interested in this field there undoubtedly will be much reduplication of effort and overlapping of service. Since so many of these patients will ultimately filter back to the civilian physicians, would it not be wise, if such is possible, to establish a central coordinating agency in which all groups will be represented and establish a unified program having many points of general agreement, and adopt the best methods from all of accomplishing the desired results? The civilian physician must have a considerable part in this reconstructive and rehabilitation scheme since there are already 4.5 million men disqualified by Selective Service for military duty who will need some form of treatment. There is every reason why the American Medical Association in cooperation with other groups should assist in formulating a cooperation program for the accomplishment of this purpose.

PROVISION OF MEDICAL CARE

The kaleidoscopic changes occurring almost daily in our national life are reflected in many ways in medicine and medical practice. Such rapid changes from week to week have increased the demands for advice and for the expression of opinions concerning new problems arising in their relation to medical care. The officers of this Association have at times found it difficult to answer satisfactorily questions propounded to them concerning new situations which have not been clearly and explicitly defined by previous action of the House of Delegates. As an example of such confusion it might be cited that the Childrens Bureau of the Department of Labor instituted in March 1943 the Emergency Maternal and Infant Care program designed to furnish obstetric and infant care to the wives and children of enlisted men under a certain grade. Compensation for this service is made by the Childrens Bureau to the state department of public health, and this agency is in turn to pay the physician and the hospital rendering the service. No definite policy had been established until the action of the House of Delegates in June 1943 after the program had been in effect for three months. As soon as this policy was established, your representatives did what they could to impress this point of view on the federal agency concerned. Therefore, in the absence of clearly stated policy by the House of Delegates on many questions which arise, if your officers fail to express themselves on such matters they are charged with ultraconservatism, whereas if an opinion is advanced about which there is no definite policy they may be charged with going beyond the established precedent. It would seem to me, as I have observed during my incumbency as President-Elect and President of the American Medical Association, that there is now a great need for a definite and detailed statement of policy which will guide the medical profession and the officers of this Association in dealing with many questions which are arising and will continue to arise concerning medical care. Such a statement should outline the extent to which the federal government and various federal agencies interested in medical service may enter various fields of medical care and expect the full cooperation of the medical profession in a combined program. The platform of the American Medical Association specifically states that the federal government may aid in the provision of medical care whenever the need can be shown, provided the control of the funds is left to state or local agencies.

At the present time and perhaps with greater acceleration in the postwar period various federal agencies interested in providing medical service may enter with greater enthusiasm the field of medical care involving such aspects as the prevention of disease, the provision of special laboratory and roentgenologic services and the diagnosis and treatment of disease.

in various fields and areas, and to make this type of service more effective these agencies may desire to create a greater number of health centers which will furnish the type of service described but will also accentuate preventive medicine to a greater extent by emphasizing immunization, health education and the essentials of nutrition by and furnishing facilities in these units for the observation and treatment of a small number of seriously ill patients. Again, other agencies will be interested in constructing hospitals in needed areas under different types of control, and it can be assumed that under certain circumstances some communities may seek federal aid in a program of obtaining the services of physicians in areas of the country requiring additional doctors. On all these questions the House of Delegates may anticipate developing situations and formulate a policy which will guide the various councils, committees and officials of the Association in the postwar period.

The medical profession has never desired to remain static in any of its efforts or accomplishments; particularly is this true at a time such as this, when the entire world is in a turmoil and chaotic conditions prevail among all nations as well as our own. Problems of medical care are fundamental to the reconstruction and rehabilitation of our nation. Necessary changes must occur in the distribution of medical care to make it more generally and easily available and at a lower cost without the slightest diminution in quality. The medical profession must take the lead in constructively planning these evolutionary changes. The recent survey of public opinion made for the National Physicians Committee has made clear that what the people want most is a better distribution of medical service at a lower cost. The question of sickness insurance on a compulsory or on a voluntary basis is one of the great problems which must be considered as a means of reaching this end. Conceivably the federal government might wish to encourage compulsory sickness insurance by offering subsidies to states in which such programs are developed, and it is also conceivable that federal aid might become available for the encouragement and expansion of voluntary insurance plans. The rapid increase in the numbers of those who are insured against hospital costs, medical costs, accidental injury and sickness is evidence that the American people still desire to express their own independence and provide care for themselves. Industry has developed its own type of prepayment insurance against the cost of medical care by furnishing hospitalization and medical service supplied by physicians on a full time basis. With these methods and other proposals which undoubtedly will develop there is brought up for consideration many questions of policy which can be met only by adequate consideration by the governing body of this Association.

UNITY WITHIN THE ORGANIZATION

During the past year it has been observed that in attempting to present the point of view, as established by the House of Delegates, to many governmental agencies we have been met with the statement that the American Medical Association does not speak for the medical profession of the United States. The reason for this is that some state medical associations have been active in presenting to the public points of view opposed to the policies previously established by the House of Delegates. If the ethical principles and conditions of practice established by the House of Delegates are to be successfully supported, state and county medical societies should bring their differences here for discussion rather than place them before the public. In times such as this it is only by the development of complete unity and support that the views of the medical profession, which have been developed for the best interests of the public and for the advancement of medical science, can be made to prevail. If the purposes and ideals and desires for which we as a medical profession stand are worth while, then there should be the loyal support of every member of all organizations to see that they prevail.

Address of the President-Elect, Dr. Herman L. Kretschmer

The Speaker presented the President-Elect, Dr. Herman L. Kretschmer, Chicago, who delivered the following address, which was referred to the Reference Committee on Reports of Officers:

Mr. Speaker and Members of the House of Delegates:

May I take this opportunity to express my thanks to this House of Delegates for the honor conferred on me when you elected me President-Elect of the American Medical Association.

I wish to take this opportunity to thank the headquarters staff for their splendid cooperation and helpfulness. Also may I thank the Editor of the world's greatest medical journal, Dr. Morris Fishbein, and the Secretary and General Manager, that grand figure in American medicine, Dr. Olin West. Their advice and counsel have been of inestimable value to me personally and to all the medical profession.

I wish to take this opportunity also to express a word of appreciation to your Board of Trustees. It has been my privilege to sit not only with the Board but also with the Executive Committee at each of its meetings during the past ten years. The Board is representative both as regards the various sections of the country and as regards the various fields of medical practice. Since the first time I sat with the Board, I have had nothing but words of praise and admiration for their devotion to duty. They are faced with many serious problems, which are always weighed with a great deal of care. Policies are discussed at length and with serious deliberation. I have yet to meet a member of the Board of Trustees who takes his job lightly and who does not give to it the best of which he is capable. Not only do these men travel great distances to and from the meetings but the amount of homework is staggering. The Board is not a closed corporation, as has been alleged; any member of the Association may bring his problem to it.

Occasionally one hears criticism of some action or failure of action by the Association. I listen patiently, then I always ask this question: "Have you gone through the home of the Association and seen for yourselves whether or not you have been reliably informed?" Only too frequently, I am sorry to say, the answer is "No, I have not." I would strongly urge every member of this House of Delegates to pay a visit to the headquarters office. I am sure you will be well repaid for your time and effort.

Of the many problems that confront the physicians of this country today, none exceeds in importance the legislation recently introduced into Congress as the Wagner-Murray-Dingell bill. No other piece of legislation has received as much consideration not only from physicians and men in allied professions but from business executives and from men in other professions. Note the detailed study given to this subject by the American Bar Association.

This trend in legislation has been going on for a good many years with not too much consideration by the profession at large, so that we were accused of not being interested. I should like to call attention to the fact that twenty-four years ago Dr. Whalen introduced a resolution into the House of Delegates on the subject of socialized medicine.

I believe it is incumbent on every physician in this country to devote at least two hours a day to educating the people in his community as to the significance of such legislation, which would result in the deterioration of medical service, limitation in the choice of the physician and increased taxes. I believe every physician in this country is in a position to do educational work along this line. I do not believe that this problem can be solved by "letting George do it." A program of education beginning at the grass roots, with the patient and his physician, is one of the most important approaches to the solution of the problem. Once the patient is well informed regarding the problem, the sailing so far as the profession is concerned should be smooth.

THE NATIONAL PHYSICIANS COMMITTEE

May I discuss with you for a moment the splendid work that has been accomplished by the National Physicians Committee. I do not know of any other organization capable of performing such a splendid piece of work as that which it has carried out. The results of the survey conducted by it is most interesting and instructive. And the consensus seems to be that it has rendered a valuable service to medicine in this country. I regret the lack of physicians' interest in this committee, as revealed in the report just issued by it. This report disclosed that only 6,227 individual physicians made contributions during the past year supporting the committee.

PUBLIC APPRECIATION OF AMERICAN MEDICINE

One hears much loose talk to the effect that the medical profession is "in bad" with the public. I have always thought this an old bromide. As a matter of fact, in the first issue of the *Transactions* of the American Medical Association, in 1848, there appears a similar statement with reference to our poor status with the public due to certain practitioners of medicine and that this should be corrected. Much of this loose talk, in my opinion, is in the nature of what may be called a "smear campaign." I have always maintained that, except for the smearers, American medicine stands supreme with the vast majority of the people of this country.

The pilot survey undertaken by the National Physicians Committee revealed the outstanding fact that the public is interested in the developments of new technic and the Association's work in upholding the standards of medical practice and in improving the products that are used in the treatment of the sick.

Another enlightening fact brought out by the survey was that a large number of people believe in prepayment plans. Interesting is the fact that those who participate in these plans think they are better off with them than without them. A large number of the people interviewed think that some sort of a prepayment plan should be provided. This subject should have the further attention of the medical profession. Whatever plans are developed must be under the control of the physicians, because, after all, they render medical services to the patient.

NEUROPSYCHIATRIC PROBLEMS

May I quote from article 2 of the Constitution of the American Medical Association: "The objects of the Association are to promote the science and art of medicine and the betterment of public health." I believe that a great opportunity exists for the Association to sponsor a program directed toward the improvement of the mental health of the people and to assume leadership in solving the neuropsychiatric problems with which we are faced today. A comprehensive study of the mental health of our people has not been undertaken so far as I know. During the present war the neuropsychiatric problem has aroused much discussion. The large number of men rejected by the draft boards is well known. The large number of neuropsychiatric casualties is legion. It has been stated that neuropsychiatric disorders are the largest single cause of casualties in the present war. The numerous articles which have appeared are illustrative of the widespread interest and the seriousness of this problem. The American Medical Association can, I am sure, accept leadership in this most important problem as it has done on many other occasions. I have in mind the splendid achievements of the Association in the Fourth of July campaign, as a result of which deaths and injuries due to Fourth of July accidents have almost passed out of the picture. The campaign for the eradication of typhoid is another splendid pioneering achievement. In the present problem particular stress must be laid on the prevention of neuropsychiatric disorders.

PRESCRIPTION OF DRUGS

Another problem that is deserving of the serious consideration of this House of Delegates is the problem of drug therapy. I have always been more or less interested in this subject and I recently had several interesting experiences which again aroused my interest in it. I wonder how many of you have any idea of the type of prescriptions that are written by the physician for the treatment of the patient. I recently reviewed 5,000 consecutive prescriptions in four pharmacies and was amazed to find that in one pharmacy 38.4 per cent called for proprietary preparations. Among 1,000 prescriptions reviewed in a teaching hospital, 14 per cent were for proprietary medicines. This is a serious and a deplorable situation. I think it is due to the fact that the teaching of pharmacology has not fulfilled its function.

Unfortunately, about two thirds of the men responsible for the teaching of pharmacology in the grade A medical schools are not doctors of medicine and of the doctors of medicine attached to these departments only a small percentage have practiced for a long time. I gained the impression from a study of my questionnaire that prescription writing and drug therapy is a chore to be avoided or, in some instances, is work beneath the dignity of the professors. I am of the opinion that too much

emphasis has been placed on the so-called scientific or laboratory side and that not enough consideration has been given to the teaching of materia medica, therapeutic and prescription writing.

It is lamentable when the young graduate goes to the pharmacist and asks him to write a prescription. One pharmacist told me that he can tell which firm's detail man has "worked" his neighborhood, because that particular firm's products have first call on the prescriptions. When our system of education does not teach the young doctor proper drug therapy, I think something should be done about it. In view of this chaotic condition, it behooves every physician in this country to follow the recommendations of the Council on Pharmacy and Chemistry of the American Medical Association. It deserves much more support than it has received from the profession at large.

SCIENTIFIC MEDICAL PROGRAMS

I should also like to discuss with you scientific medical programs. As one reviews the programs of the Association over the years, one cannot help being impressed with the wealth of material presented to the medical world at the annual sessions. But I sometimes wonder whether these programs may not at times fail to fulfil their objectives. In my opinion I believe that insufficient consideration is given in adjusting these programs to the needs and desires of the general practitioner. I am cognizant of the fact that the principal new things that have been developed in the past year should be presented to the profession at the annual session. While this is of primary importance, we should not fail at the same time to recognize that the man over the corner drug store not only needs to be informed of the new things that have developed in the past year but must have something to take back and use in his practice. This is evidenced by the fact that sessions for the general practitioner have been included in the last two programs. Before the official opening of the meetings of the Association, two days are devoted to what one might call postgraduate courses. A review of the program this year shows a presentation of important and timely subjects.

Your Committee on Scientific Assembly has arranged a splendid program. *This preliminary program is deserving of much more publicity than it has received in the past. I am of the opinion that this program should be built around the general practitioner.* May it not be well to set up some type of arrangement whereby each section would devote to topics for the general practitioner one of the three days now given over to the presentation and discussion of papers in its regular program? With the wealth of new developments and new technics, this would cut down the amount of time on the present programs; however, as the Association is an educational institution, I can visualize the extension of the session from three days to four.

I hope that what I have said will not be interpreted as derogatory to the splendid programs that we have had in the past and that we have this year, but I do believe that we should stop, look and listen—to see how we can make the programs serve a much larger number of physicians in this country and make the annual session of greater value to the general practitioner.

Because the American Medical Association is a scientific and educational body, it will survive in peace and in war, in prosperity and in depression, just so long as it continues to maintain its high standards of educational and scientific excellence. It is because of these efforts that the physicians of this country will continue to support the Association under any and all conditions.

Report of Council on Medical Education and Hospitals

RESOLUTION ON SHORTAGE OF MEDICAL STUDENTS

On request of the Acting Chairman of the Council on Medical Education and Hospitals, Dr. Charles Gordon Heyd, the House consented to the immediate consideration of a resolution dealing with shortage of medical students, which was presented by Dr. Heyd as follows:

The Council feels that its efforts to preserve the structure of medical education would be strengthened by adoption of the following resolution by the House of Delegates:

WHEREAS, The present policy of the Army and the Selective Service System in preventing the enrolment of a sufficient number of qualified medical students will inevitably result in an overall shortage of qualified physicians with imminent danger to the health and well being of our citizens; therefore be it

Resolved, That it is imperative that immediate action be taken by the President or the Congress of the United States to correct the current drastic regulations which result in a restriction of the number of students qualified to enter the courses of medical instruction in approved medical schools.

The resolution was adopted on motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. Robert E. Schlüeter, Missouri, and carried after discussion by Dr. Frank H. Lahey, Chairman of the Board of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians, and Dr. Wells P. Eagleton, New Jersey.

REPORTS OF OFFICERS

Report of the Secretary

Dr. Olin West, Secretary, presented his report as printed in the Handbook, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary, except the proposed amendment to the Constitution, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws.

Report of Board of Trustees

Dr. Roger I. Lee, Chairman, presented the report of the Board of Trustees as printed in the Handbook, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary, with the exception of the reports of the Bureau of Legal Medicine and Legislation and the Bureau of Medical Economics, which were referred to the Reference Committee on Legislation and Public Relations.

Supplementary Report of Board of Trustees

Dr. Roger I. Lee, Chairman, presented a supplementary report of the Board of Trustees, as follows:

1. **REPORT ON RESOLUTION REQUESTING BOARD OF TRUSTEES TO PREPARE A CONCISE STATEMENT OF ACHIEVEMENTS OF THE MEDICAL PROFESSION FOR SUBMISSION TO BOARDS OF EDUCATION:** The Board of Trustees feels that the intent of the resolution has been accomplished through publication of material on the achievements of medicine in practically every issue of *HYGELA* and also through several histories of medicine which have been published recently.

2. **COUNCIL ON PHYSICAL THERAPY:** The Board of Trustees recommends that the name of the Council on Physical Therapy be changed to Council of Physical Medicine.

3. **SUPPLEMENTARY REPORT FROM THE COUNCIL ON INDUSTRIAL HEALTH:** The following report of the Council on Industrial Health is approved by the Board of Trustees:

The attached report has been approved by the Council on Industrial Health after consultation with representatives from the American Federation of Labor, the Congress of Industrial Organizations, the National Association of Manufacturers, the United States Chamber of Commerce and the Joint Claims Committee of the Stock and Mutual Casualty Insurance Companies. Because of the current importance of placing the disabled in suitable employment, each of the listed conferees is asking for ratification of this report by the respective parent organization.

The Council on Industrial Health, therefore, requests approval of this report by the Board of Trustees and the House of Delegates.

C. M. PETERSON, M.D., Secretary.

PURPOSE

The purpose of industrial health programs is to promote and maintain the physical and mental welfare of all industrial employees. Health examinations in industry are a means to this end.

Unjust or questionable exclusion from work through improper application of the findings on health examinations in industry is against the public welfare and contrary to sound industrial health principles.

From the public and industrial health standpoint, the only absolute bars to immediate employment in nonhazardous occupations should be:

1. Communicable disease.
2. Mental illness in which impaired judgment or actions prevent cooperative effort.

3. Incapacitating injury or disease.

Other considerations related to employer liability, workmen's compensation, factory acts and health codes must be determined separately for each jurisdiction.

Specifically, the objectives of industrial health examinations are:

1. To facilitate placement and advancement of workers in accordance with individual physical and mental fitness.
2. To acquaint the worker with his physical status and to assist him in improving and maintaining personal good health.
3. To safeguard the health and safety of others.
4. To discover and control the effects of unhealthful exposure.
5. To promote cooperative support and understanding of industrial health practices by employer and employee alike.

SCOPE

Industrial health examinations should include:

1. Past medical family and occupational history.
2. Physical findings.
3. Personality appraisal.
4. Laboratory data.
5. Summary and recommendations.

GENERAL PROCEDURES

Since placement of the worker in suitable employment is an important objective of industrial health examinations, the examiner will obtain best results only when he is familiar with the industry he serves. Medical inspection of the plant or industrial premises at regular intervals is essential to an adequate health examination program as well as in other aspects of industrial hygiene.

Health examinations in industry are classified under two major headings:

1. Preplacement examinations of prospective employees.
2. Periodic examinations (regular or special).

In either case the examinations should be complete.

The examination should be conducted by the physician himself, except such routine procedure as can safely be assigned to trained assistants. The worker should remove all clothing in a private room. Special arrangements and a nurse or female aide in attendance are necessary in examining women.

EQUIPMENT

Health examinations will be facilitated if the following equipment is available:

Examining table	Dynamometer
Stools, chairs and couch	Centrifuge
Mirror	Microscope
Screen	Stethoscope
Scale and measuring rod	Ophthalmoscope
Metal measuring tape	Blood vacuum tubes
Spotlight	Otoscope
Distant and near reading cards	Reflex hammer
Color sense testing cards	Rubber gloves and finger cots
Nose and throat mirror	Tuning forks
Transilluminator	Hemoglobin outfit
Blood pressure instrument	Urinalysis equipment
Lucer syringes (2 cc. and 10 cc.)	Garment racks
Thermometer	Standard office furniture

RECORDS

Content.—No single form has been devised to suit all requirements. The accompanying example is a composite of many used successfully in industry.

Regardless of form, the records should contain:

1. Identification data: name, address, date and place of birth, race, sex, marital status, clock or social security number. Some industrial physicians include name and address of next of kin.

2. Past medical and occupational history: Although details may be elicited by assistants, the importance of significant past health experience should be evaluated by the physician himself.

3. Physical findings:

(a) Preplacement examination. The attached form is designed for preplacement health examinations. Clarity and uniformity of expression are desirable. Variation in procedure will depend on specific industrial exposures and special job requirements. Examinations for transfer to other work or on return to work after prolonged absences are essentially preplacement in character.

(b) Periodic examination. Reexamination should be conducted in the same detail as the original preplacement exami-

nation survey. The recommended form can be readily modified to allow for reexamination and to meet special requirements. General principles are fully described in "Periodic Health Examination—A Manual for Physicians," American Medical Association, Chicago, 1940. Repetition of health examinations must be determined by the physician in charge, based on his original examination and the nature of the industrial environment.

4. Personality data. Observation of temperament, personality and significant nervous or mental manifestations should be correlated parts of a complete examination. The brief outline suggested in the form has been used in practice with good results.

5. Laboratory data. Urinalysis, hemoglobin determination, blood test for syphilis, chest x-ray examination, differential blood smear and blood sedimentation rate are employed in industry in about that descending order of frequency.

6. Summary and recommendations.

INDUSTRIAL HEALTH EXAMINATION

Employer Name	City Address	State	Clock No.
Age	Race	Marital Status	Sex
Personal Physician	Next of Kin	Social Sec. No.	
Personal and Family History:			
Immunization Record:			
Occupational History:			
Physical Examination: Date		Examiner	
Height	Weight	Chest Measurement	{ Inspiration Expiration
Temperature	Pulse	{ Resting After Exercise	Girth
Blood Pressure	Posture	Musculature	Nutrition
Skin	Glands	Hair	Scalp
Vision	{ Distant Near	{ Right Left	Corrected { Right Left
Color Sense	{ Right Left	Depth Perception	Eye grounds
Hearing	{ Right Left	Nose-Throat	Tongue
Tonsils		Neck	
Teeth		Gums	
Lungs	{ Right Left		
Heart		Hernia	Prostate
Abdomen		Rectum	
Genitalia			
Spine	Reflexes	Hands	Feet
Joints			
Dysmenorrhea			
Laboratory Data: Date		Examiner	
Urine: Appearance	Specific Gravity	Sugar	Albumin
Blood: Hemoglobin	Smear	Sedimentation Rate	
Wassermann	Kahn	Kline	
X-Ray: Chest		Other	
Personality Data:			
Appearance	{ Neat Careless Slovenly	Temperament	{ Aggressive Quiet Cooperative Noncooperative
Comparative Schooling *	{ Advanced Average Retarded	Summary	{ High Medium Low
Summary and Recommendations:		Rating:	

* Comparative schooling refers to the level of education attained in comparison with other children in the family.

Rating.—Usage varies in rating health status, but the common intent is to classify workers in one of the following groups:

A. Fit for all work.

B. Fit for work under periodic medical review:

1. With limited physical exertion.
2. In nonhazardous work.
3. With orthopedic defect.
4. With defective vision.
5. With defective hearing.
6. With neuromental handicap.

C. Unfit for work at time of examination.

Preservation and Use.—The examining physician may properly put information derived from records of industrial health examination to the following uses:

1. All major findings should be discussed with the worker, with emphasis on the importance of obtaining immediate and adequate medical care.

2. A transcript may be supplied to the employee's personal physician or to other official community health agencies on request or consent of the employee.

3. The employer should be given information in accordance with the rating plan described in this report to facilitate placement or promotion. A special simple form can be devised for this purpose. The employer should especially be notified of any condition or disability thought to be caused by faulty work environment.

4. Governmental agencies such as courts, workmen's compensation commissions or health authorities should be supplied with information on legally enforceable official order or when required by law.

In all other respects the confidential character of health examination records should be rigidly observed and access should be granted only on consent, in writing, of the worker, preferably after preliminary discussion with the examining physician.

Suitable filing equipment and training of personnel should be provided for the safe keeping and confidential maintenance of all medical records in the exclusive custody and control of the medical director.

PERSONNEL

Health examination is an important service of an industrial medical department having regular medical staff supervision. Where considerable numbers of examinations occur, nurses, technicians and clerks are helpful in securing and recording data in routine procedure. They require training, which should be accepted as a special responsibility of the medical director.

In small plants, employers customarily make arrangements with individual examiners. A modification of this practice is to secure the services of an examiner from a panel of physicians approved by the county medical society for services of this kind.

COSTS

Industry should furnish, without charge, all medical and clinical assistance essential to a health examination program.

REVIEW AND APPEAL

When a worker has been physically examined, and the doctor making the examination reports that he is physically unfit for any work or for certain classes of work, which report may have an adverse effect on the employment of such worker, the following procedure shall apply:

The worker may designate a physician of his choice and request a review of the findings made by the examining doctor. These two physicians may proceed to render a joint report. If they are not in agreement, then a third physician, agreed on by the two reviewing physicians, shall be selected and his findings shall be final. If the two physicians cannot agree on a third physician, then the chairman of the industrial commission in the state in which the plant is located shall make the selection.

4. REPORT OF CONFERENCE OF COMMITTEE CONSISTING OF THREE REPRESENTATIVES EACH OF THE AMERICAN MEDICAL ASSOCIATION AND THE AMERICAN HOSPITAL ASSOCIATION: Pursuant to action taken by the House of Delegates of the American Medical Association at the annual session held in June 1943, a conference was held between the Board of Trustees of the American Medical Association and the board of trustees of the American Hospital Association. After extended discussion, a committee consisting of three representatives of each association was appointed to confer with a view to develop an expression of opinion that could be reported back to the respective organizations.

The conference is of the opinion that the evolution now going on in the field of hospital and medical care has developed throughout the nation a great variety of techniques for the provision of roentgenologic, pathologic and anesthetic services, and the conference therefore suggests that

The American Medical Association and the American Hospital Association reaffirm the Principles of Relationship between Hospitals and Radiologists, Anesthetists and Pathologists as approved in 1939.

Neither prepayment plans for hospital care nor prepayment medical plans with all their significance for distribution of such care should be used to force a change in present relationships between hospitals, radiologists, anesthetists and pathologists as outlined in these Principles.

The extension of prepayment plans for medical and hospital care must not be interrupted by any group which would use the acknowledged values of such prepayment services to the public as a device to force a set national pattern in the relationships between physicians and hospitals.

These principles, which are consistent with the historical background of development, have evolved through democratic processes by agreement between the Board of Trustees of the American Hospital Association, the Council on Medical Education and Hospitals of the American Medical Association, the American College of Surgeons, and the various specialty societies representing the groups involved and give proper consideration to patients, physicians and hospitals.

Until experience shall have determined the technic whereby roentgenologic, pathologic or similar services may best be provided and remunerated, the decision of any individual hospital should be determined by agreement between the administration and the medical staff of such hospital.

In determining the technic, the principles of relationship between hospitals and radiologists, anesthetists and pathologists adopted in 1939 should prevail.

5. COMMITTEE TO COOPERATE WITH NATIONAL ADVISORY COUNCIL ON PHYSICAL FITNESS: A committee has been appointed by the Board of Trustees to cooperate with the National Advisory Council on Physical Fitness consisting of the following members: Drs. R. L. Sensenich, Louis A. Buie, Morris Fishbein, George Lull and William D. Stroud.

6. RESOLUTION ON HEALTH EDUCATION IN SECONDARY SCHOOLS: The following resolution, adopted by the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, was approved by the Board of Trustees for presentation to the House of Delegates:

WHEREAS, Health education is an effective method for improving the health of students and for influencing their attitude toward community health; and

WHEREAS, The Office of Education, with the assistance of representatives from the U. S. Public Health Service, the Children's Bureau, representatives of the armed forces and others, has prepared a suggested program of health education entitled "Physical Fitness Through Health Education"; and

WHEREAS, The Office of Education with the assistance of a special committee composed of individuals associated with medicine, education and public health has issued a report on "The Preparation of Teachers for the Program of Physical Fitness Through Health Education"; and

WHEREAS, The Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association is vitally interested in all efforts to improve the health of the nation through health education efforts; therefore be it

Resolved, That the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association endorses the recommendation of the Office of Education that schools throughout the country provide programs of health education for all secondary school students, adapting the suggestions contained in "Physical Fitness Through Health Education" to the particular needs and problems of their students and community; and be it further

Resolved, That the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association urges that school administrators provide sufficient allotments of time to permit an integrated health education program that includes such topics as accident prevention, nutrition, disease prevention, first aid, functioning of the human body, community hygiene, correction of remediable defects, the dangers of self medication and of fads and quacks, home care of the sick, mental hygiene and the use of professional health services; and be it further

Resolved, That the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association urges that teachers of health education be adequately prepared in health education and that state departments of education prepare specific requirements for those who are and these who will be responsible for secondary school health education.

7. RESOLUTIONS ON GIVING INTELLIGENT INSTRUCTION IN SCIENCE AND BIOLOGY TO THE YOUTH OF AMERICA: The Board of Trustees approved for presentation to the House of Delegates the report as follows:

In pursuance of the action of the House of Delegates instructing the Bureau of Health Education to further the purpose of the resolution relative to biology teaching, the bureau submitted the resolution to the Joint Committee on Health Problems in Education of the American Medical Association and the National Education Association, and the following statement was adopted by that committee:

The Joint Committee thoroughly approves the basic idea that sound teaching in hygiene is dependent on a real understanding of the fundamental biology involved. We should like very much to see high school students better prepared in all aspects of general biology to the end that they may understand their own and their neighbors' reactions as members of a biologic species. We recommend that general biology be taught with the intention that it serve as a basis for health instruction. We have no objection, of course, to traditional botanic and zoological instruction but insist that such instruction be not substituted for this instruction in general biology intended as a prerequisite to instruction in health education.

We are reluctant to urge biologic instruction on the schools until we have reason to believe that there is teaching personnel capable of handling the subject in a really constructive way. We fear that, until the time has come when there are many good teachers of general biology, the making of such courses compulsory may have a reverse effect which may do damage to the whole development of the sound hygienic concept. We strongly urge that normal schools give more attention to preparation of teachers in general and human biology to the end that the subject may be vitalized, made interesting and capable of practical application.

Attention is respectfully called to the fact that many patrons of the schools are apprehensive of biology teaching because of its relation to such controversial subjects as evolution, reproduction and heredity. It is not unlikely that powerful religious opposition to compulsory biologic instruction might be offered in many places.

Attention is also called to the fact that the biology teacher in presenting this material would need to be somewhat of a philosopher in making the transition from the strictly scientific aspects of the subject to those having to do with their human application. Such a "philosopher" might go very far astray, as has indeed been the case in many instances when such teachers were "hipped" on some particular phase of the subject. In other words, this instruction is so vital that it is likely to arouse very deep antagonisms in the minds of many people.

When this basic general biology is introduced into a curriculum, it should be understood that it is preparatory to, and not a substitute for, later health education.

As illustrations of the sort of instruction which we feel to be very vital, we suggest the following:

(a) Students should be made familiar with the nature and behavior of bacteria and other parasites capable of causing disease. This should include the manner in which disease is produced and the means by which the body protects itself from these pathogenic forms. Abundant practical illustration should be made from the various diseases of man and domesticated animals.

(b) Of great importance is an understanding of the basic biology of the cell. This is fundamental to an understanding of heredity; to the prevention, diagnosis, classification and understanding of cancer; to a real appreciation of inflammation, body growth and repair.

(c) Of great importance is the understanding of the adaptation of a biologic species to its environment. This covers such matters as preservation and dissemination of the species, symbiosis, parasitosis and immunity.

(d) The student should have a basic understanding of the essential physiologic processes (metabolism, nutrition, respiration, elimination, conduction of stimuli and response to stimuli).

(e) The student should have a basic understanding of heredity in plants and animals.

(i) All such instruction should be directed toward the objective that the child may understand, as well as may be, his own body and his own and others persons' reactions in a complex and constantly changing world.

(j) Instruction of this sort should not be directed toward meeting college entrance requirements. If instruction in strict botany or zoology is desired, such instruction should not be permitted to take the place of the subject matter of this course.

With these reservations and in the light of these recommendations, the Joint Committee strongly endorses the development of general biology as a prerequisite to instruction in hygiene. We feel strongly that instruction of this sort should not be attempted until there is reason to believe that the equipment, personnel and textbook are of such nature and quality that the course will sell itself to thinking people as being one which is eminently practical and reasonable. We believe that there could be no more fundamental subject in the preparation of the child for the problems of life than in the study of the basic principles underlying life.

8. RESOLUTIONS FROM NATIONAL MEDICAL ASSOCIATION: Resolutions from the National Medical Association were referred without reading to the House of Delegates without recommendation by the Board of Trustees.

The Speaker referred items 1, 2 and 4 of the Supplementary Report of the Board of Trustees to the Reference Committee on Reports of Board of Trustees and Secretary, items 3, 6 and 7 to the Reference Committee on Hygiene and Public Health and item 8 to the Reference Committee on Executive Session.

Report of Judicial Council

Dr. George Edward Follansbee, Chairman, presented the Report of the Judicial Council as printed in the Handbook, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws.

Report of Council on Medical Education and Hospitals

Dr. Charles Gordon Heyd, Acting Chairman, presented the report of the Council on Medical Education and Hospitals as printed in the Handbook and the following supplementary report, all of which was referred to the Reference Committee on Medical Education:

(a) *Essentials of an Acceptable Medical School.*—The present "Essentials" prescribe the contents of the curriculum within limits which are undesirable in the light of modern trends in medical education. Part of section VIII, Curriculum, now reads as follows:

"The entire course of four academic years should consist of from 3,600 to 4,400 hours, distributed as from 900 to 1,100 hours a year, and shall be grouped as set forth in the following schedule, each group to be allotted approximately the percentage of hours of the whole numbers of hours in the courses as stated:

	Number	Per Cent
1. Anatomy, including embryology and histology..	14	18.5
2. Physiology	4½	6
3. Biochemistry	3½	4.5
4. Pathology, bacteriology and immunology.....	10	13
5. Pharmacology	4	5
6. Hygiene and sanitation.....	3	4
7. General medicine.....	20	26.5
Neurology and psychiatry		
Pediatrics		
Dermatology and syphilis		
8. General Surgery.....	13	17.5
Orthopedic Surgery		
Urology		
Ophthalmology		
Otolaryngology		
Roentgenology		
9. Obstetrics and gynecology.....	4	5
	76	100
Electives	24	

"When the teaching conditions demand it, a subject may be transferred from one division to another."

It is recommended that this portion of section VIII be changed to read as follows:

"Curriculum. The entire course should be designed to train the student in the science, art and practice of medicine, including the understanding and cultivation of health and the prevention and treatment of disease.

"The main purpose of the undergraduate curriculum should be to provide the student with a sound foundation in the

fundamentals of medicine on which he can build in the future in general or special practice or in scientific investigation. He should have acquired such habits of mind and thought that, in addition to profiting by his professional experience, he will continue to educate himself throughout his life. By the end of undergraduate medical courses the student should have matured sufficiently to assume the responsible duties of his profession.

"The curriculum should extend over a period of at least four academic years and provide for adequate instruction in the following:

"Anatomy	Medicine, including
Embryology	Pediatrics
Histology	Psychiatry
Neuroanatomy	Neurology
Physiology	Dermatology
Psychobiology	Physical medicine
Biochemistry	Therapeutics
Pathology, bacteriology and im-	Tropical medicine
munology	Surgery, including
Pharmacology	Orthopedic surgery
Preventive medicine	Urology
Hygiene and sanitation	Ophthalmology
	Otolaryngology
	Radiology
	Anesthesia
	Obstetrics and gynecology"

(b) *Essentials of an Acceptable School for X-Ray Technicians.*—"Essentials of an Acceptable School for X-Ray Technicians" are presented herewith for ratification by the House of Delegates. These Essentials had been prepared by instructions from the House of Delegates to the Council.

PREAMBLE

The organizations primarily concerned with the training of x-ray technicians are the Council on Medical Education and Hospitals of the American Medical Association and the American Registry of X-Ray Technicians sponsored by the American College of Radiology and the American Society of X-Ray Technicians. The Council functions by inspecting, reporting and approving these schools, while the Registry investigates, examines and certifies the competence of technicians applying for registration.

The Council, with the cooperation of the Registry, has established the following standards for this type of training for the information of technical schools, physicians, hospitals, prospective students and others, and for the protection of the public.

Individuals are being trained in these schools to work as technicians under the direction of qualified physicians and not independently.

I. ADMINISTRATION

1. Acceptable schools for training x-ray technicians may be conducted by approved medical schools, general hospitals or x-ray departments affiliated with a general hospital. A complete x-ray department, with a sufficient volume and variety of x-ray examinations, should be maintained. The department shall comply with standard Safety Regulations for X-Ray and Radium Protection.

2. All training of technicians shall be under competent medical control.

3. Resources for continued operation of the school should be insured through regular budgets, gifts or endowments. The school shall not depend entirely on funds received as student fees. Commercial schools, operated for profit, frequently do not maintain proper educational or ethical standards and as such are not acceptable.

II. ORGANIZATION

1. Affiliation with an accredited college, university or medical school is desirable but not essential. When such an affiliation exists, an advisory committee should be established including representatives from the school and from the departments of the college, university or medical school which participate in the training program.

2. Adequate space, light and modern equipment should be provided in the x-ray department. A library containing up to date references, texts and scientific periodicals pertaining to x-ray technic should be maintained or be readily accessible to the students.

3. Satisfactory record systems should be provided for all work carried on in the department. Monthly and annual classifications of the work of the department should be prepared.

4. Records of students' college and other credentials should be on file. Records should be kept of each student's attendance and grades as well as the number and types of technical procedures performed. An outline of the curriculum and the rotation of assignments should be available in the radiologist's office.

5. Two or more students should be enrolled in each class. Approval is automatically withdrawn if a school does not have any students for a period of two years, unless a satisfactory reason is provided.

III. FACULTY

The school should have a competent teaching staff. The directing radiologist must be a duly licensed physician who is eligible for certification by or has been certified by the American Board of Radiology. He shall be in regular attendance for sufficient time to supervise adequately the training program. He should have at least one assistant instructor who is a trained x-ray technician, registered or eligible for registration by the American Registry of X-Ray Technicians. It is desirable that there be approximately one instructor for each two students.

IV. ADMISSION REQUIREMENTS

Candidates for admission should satisfy one of the following requirements:

(a) Completion of the four years of high school. Courses in physics, algebra, geometry and chemistry are recommended.

(b) Passing of a college entrance examination for admission to an accredited college or university.

(c) Graduation from a school of nursing recognized by the state board of nurse examiners.

V. CURRICULUM

1. The course of training should be not less than twelve months. The following subjects should be adequately presented: elementary anatomy and physiology, physics, x-ray equipment, darkroom chemistry and procedures, x-ray technics, ethics, record keeping and general office or departmental work. Adequate vacation periods should be allowed during each twelve months of training.

2. The instruction should follow a planned outline and should include lectures or informal discussions, demonstrations, supervised practice, text assignments and suitable examinations.

3. Adequate hospital experience should be provided. A hospital used for training x-ray technicians should be registered and be otherwise acceptable to the Council on Medical Education and Hospitals of the American Medical Association.

VI. ETHICS

1. Excessive tuition or other student fees and commercial advertising shall be considered unethical.

2. Schools conducted primarily for the purpose of substituting students for paid technicians will not be considered for approval.

VII. HEALTH

Applicants shall be required to submit evidence of good health and successful vaccination. All students shall be given a medical examination as soon as practicable after admission by a physician designated by the school. This examination shall include a roentgen examination of the chest. There shall be adequate periodic medical examinations of the student.

VIII. METHOD OF APPLICATION

1. Application for approval of schools for x-ray technicians should be submitted to the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago 10.

2. Inquiries regarding registration of qualified x-ray technicians should be addressed to the American Registry of X-Ray Technicians, 2909 Raleigh Avenue, Minneapolis 16.

Report of Council on Scientific Assembly

Dr. A. A. Walker, Chairman, presented the report of the Council on Scientific Assembly as printed in the Handbook, which was referred to the Reference Committee on Sections and Section Work.

Report of Council on Medical Service and Public Relations

Dr. Louis H. Bauer, Chairman, presented the report of the Council on Medical Service and Public Relations as printed in the Handbook and the following supplementary report, which were referred to the Reference Committee on Legislation and Public Relations except the portion of the supplementary report referring to amendments to the Constitution and By-Laws, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws, and the portion of the supplementary report concerning public health, which was referred to the Reference Committee on Hygiene and Public Health:

Supplementary Report of the Council on Medical Service and Public Relations

Since the published report was prepared, a number of matters have been considered by the Council.

There is a renewed attempt to unionize the employees of hospitals which may lead to serious eventualities. The Council invites attention to a decision of the Supreme Court of the state of Pennsylvania, which was issued on Jan. 6, 1941:

"A hospital is not an industry. It has not been the custom in the past to unionize hospitals. The effect of unionization and attendant efforts to enforce demands would involve results far more sweeping and drastic than mere property right.

"The question of profits for the employer or wages for the employees is not alone involved. It is not merely a matter of suspending operations, ceasing work and stopping production, such as might be true in a steel mill or automobile factory. It is a question of protecting the health, safety and, in many cases, the very lives of those persons who need the service a hospital is organized to render . . ."

The Council recommends that the House of Delegates go on record as opposing action by any group which might result in jeopardizing the health, safety and lives of patients.

Inasmuch as the E. M. I. C. program is being reported on at length by the Bureau of Health Education, the Council is making no additional recommendations on this subject, although it has considered the whole subject at length and has held a conference with Dr. Martha Eliot of the Children's Bureau. However, the Council desires to invite attention to a circular issued by the Children's Bureau, entitled "Maintaining Well-Baby Clinics in Every Community." This circular makes the following startling and unwarranted statements:

"They [the clinics] are of value not only to families in economic need but to all parents who wisely take advantage of the help they offer in keeping well babies well."

"The service that the mother receives in a child-health conference is more than she can get in the usual office visit to a doctor."

"It is particularly necessary at this time that enough of these well-baby clinics be made available in all communities . . . because the E. M. I. C. program . . . will rely on child health conferences for the health supervision of these babies."

"To insist that clinics be open to all mothers who seek this service free of charge."

Mothers are to be admitted without investigation of income.

These quotations are sufficient to show the trend of the Children's Bureau, and we cannot countenance such propaganda.

There has been a bill introduced by Congressman A. L. Miller of Nebraska which would transfer all government agencies dealing with health to the United States Public Health Service. The Council recommends approval of this bill. Among other things it would remove the Children's Bureau from the Department of Labor to a place where it more properly belongs, and the Council feels that such a transfer might aid in curbing the present aim of the Children's Bureau, which apparently seems to be chiefly the socialization of medicine in this country. Furthermore, the Children's Bureau has never been willing to accept good scientific opinion in the conduct of its affairs but has relied on a hand-picked committee, many of the members of which have been powerless to prevent actions of which they did not approve.

The Council held a meeting in Washington, D. C., on May 22 and 23. On May 22 a conference was held with other agencies interested in medical care. Besides the Council, among the agencies represented were two members of Congress, the American Dental Association, the United States Public Health Service, the Federal Security Agency, the War Manpower Commission, the Office of Vocational Rehabilitation, the Children's Bureau, the American Federation of Labor, the Congress of Industrial Organization, medical schools, the National Physicians' Committee, the Council on Medical Service of the Pennsylvania State Medical Society and the Medical Society of the District of Columbia. Every one present had an opportunity to express his views, and a short discussion period followed. It is hoped that further such conferences may be held in the future.

The Council feels that the work of the Bureau of Medical Economics is so closely allied with its own work that it recommends that the House authorize the reorganization of the Bureau as a research bureau and that it be amalgamated with the Council on Medical Service and Public Relations as a subdivision of that Council.

In furtherance of its recommendations that the American Medical Association take a more active part in encouraging voluntary insurance against the costs of hospital and medical care, the Bureau of Medical Economics under the direction of the Council should be charged with the following duties:

To assemble and make available information concerning the activities of all states.

To educate physicians by means of bulletins and the A. M. A. publications, regarding such activities.

To report regularly to the Board of Trustees and the Council on Medical Service and Public Relations.

To meet with the directors of present voluntary medical care plans to assist in the promotion and in the study of actuarial experience.

To meet with representatives of state associations.

To meet with representatives of the American Hospital and other national hospital associations and with hospital insurance or Blue Cross organizations.

To study and report on private insurance plans and policies.

To meet with industrial and labor organizations that are sponsoring medical care plans.

To establish a central bureau as a clearing house for existing voluntary mutual and private medical insurance plans.

The Council also recommends that it be authorized to employ a director of medical prepayment insurance with such assistants as may be necessary to assist in carrying out the foregoing program.

The Council has given a great deal of time and thought to the consideration of the status of medical officers in the Veterans' Administration. Many of these officers have belonged to state and county societies. They have then been transferred to another state. Because they do not have a license to practice in the new location, they lose their affiliation with the American Medical Association. When they come up for membership or fellowship in the colleges or for certification by a national specialty board they are held up because of the lack of any affiliation with the A. M. A. The Council held a conference with the officials of the Veterans' Administration, and the Council finally decided to request the General Manager to bring the matter before the Judicial Council and request that the Judicial Council propose to the House of Delegates the necessary changes in the Constitution and By-Laws of the Association to make it possible for reputable and qualified members of the Medical Division of the Veterans' Administration to become Fellows of the A. M. A.

A communication was received from the National Tuberculosis Association requesting the Council's approval of a resolution on the control of tuberculosis. The Council did not feel that it could approve it in the original form and has revised it and recommends that the House of Delegates approve it in this revised form:

WHEREAS, Published reports indicate a threatened increase in the prevalence of tuberculosis; and

WHEREAS, Tuberculosis is one of the principal public health problems in the United States and requires an intensified campaign to find the early case and to provide modern treatment; therefore be it

Resolved, That the Council on Medical Service and Public Relations recommends that the House of Delegates of the American Medical Association take the following stand:

1. That the control of tuberculosis requires intensification of case finding and follow-up of contacts.
2. That it is essential to promote the discovery of cases of tuberculosis in the minimal and, therefore, more hopefully curable stage.
3. That it is necessary to extend procedures for careful, continuous supervision of the tuberculous by practicing physicians, who, in cooperation with duly constituted health authorities, federal, state and local, are in a position to deal with these problems by modern methods to prevent the spread of this communicable disease.
4. That any extension of efforts better to control tuberculosis should be in keeping with the basic principles enunciated from time to time by the House of Delegates.

In our efforts to improve the distribution of medical care, besides the extension of approved voluntary insurance, hospital, medical society, industrial and commercial plans, the question of centers for diagnostic aid to the physician must be considered. There are areas in the country in which diagnostic facilities are not readily available, and this results in keeping physicians away from those areas or in a lowering of the standard of medical care rendered there.

Therefore the Council recommends that there should be a study and survey of those areas in which diagnostic facilities are inadequate.

These surveys could best be made by the local communities concerned. This study and survey should cover the practicability of establishing centers for diagnostic aid to the physician. There should be taken into consideration location, method of supervision, method of financial support and scope of activity. If the result of this survey indicates that establishment of such centers would facilitate the distribution of medical care of a high type to any area not having such care at the present time, the American Medical Association should stand ready to assist local communities in developing them.

The Council studied the platform of the American Medical Association which was adopted by this House six years ago. We felt that this platform should be revised and brought up to date. As you will recall, the original platform consisted of eight planks or principles, and each plank was followed by a certain amount of explanatory matter. The Council feels that these same principles still hold with minor changes in their wording but that the explanatory matter is in some cases obsolete and neglects covering some of the principles we have since adopted. Furthermore, there is one broad principle to which these eight principles are subservient. Hence the Council recommends that the platform be revised to read as follows:

1. *Availability of medical care of a high quality to every person in the United States.*

In carrying out this widespread distribution of medical care and in any evolution necessary in the methods of administering medical care, the basic principles necessary to the maintenance of scientific standards and the quality of the service rendered must be maintained.

It is not in the public interest that the removal of economic barriers to medical service should be utilized as a subterfuge to overturn the whole order of medical practice or the democratic plan of government. Removal of economic barriers should be an object in itself.

It is in the public interest that the standards of medical education be constantly raised, that medical research be constantly increased and that graduate and postgraduate medical education be energetically developed. Curative medicine, public health medicine, research medicine and medical education all are indispensable factors in promoting the health, comfort and happiness of the nation.

In carrying out this objective, the American Medical Association advocates:

A. *In the extension of medical services to all people, the utmost utilization of qualified medical and hospital facilities already established.*

There is no evidence that the American people wish different doctors or a different system of medical care. There is evidence that they wish that care more widely distributed and they wish some method of easing its economic burden, especially by prepayment plans. That the people desire a personalization of

service is evidenced by the fact that in the present time of full employment the turnover in charity hospitals is at a new low and the semiprivate and private beds in the private and voluntary hospitals are overcrowded, whereas in times of slack employment the reverse is true.

The extension of hospital facilities should be carried out only after a careful survey which indicates that present hospital facilities are being used to the utmost or that there is a definite lack of hospital beds for a particular community.

Again, it has been argued that the demands for medical care in some sections of the country might require the importation of considerable numbers of physicians or the transportation of numbers of physicians in the areas in which they now are to other areas. In this connection it would seem to be obvious that a change in the economic status of the communities concerned would result promptly in the presence of physicians who might be seeking locations. The utilization of existing qualified facilities would be far more economical than any attempt to develop new facilities. There are many emergency situations which may arise in time of war. In most instances these emergencies will not continue after the war. Where they do, other arrangements must be made to meet them.

B. The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability, including the development and extension of voluntary hospital insurance and voluntary medical insurance.

In the United States today our sickness and death rates are lower than those of any other great country in the world. This fact is generally recognized. The medical profession recognizes the importance of doing everything possible to prevent every unnecessary death. At the same time it has not been established by any available evidence that a change in the system of medical practice which would substitute salaried government doctors for the private practitioner subject to the control of public officials would in any way lower sickness and death rates. Compulsory sickness insurance in no instance has given as good a health record as the American system.

The medical profession has approved prepayment plans to cover costs of hospitalization and also prepayment plans on a cash indemnity basis for meeting the costs of medical care. It continues, however, to feel that the development of the private practice of medicine which has taken place in this country has led to higher standards of medical practice and of medical service than are elsewhere and that the maintenance of the quality of the service is fundamental in any health program.

The American Medical Association has approved prepayment hospital insurance subject to the principles adopted by the House of Delegates. The number of people covered by it is constantly increasing. Its availability should be extended to all who desire it.

Medical expense insurance has developed slowly, but much valuable experience has been accumulated. All constituent state associations have been urged to develop voluntary plans within their territory so that the entire country may be covered by such plans. The American Medical Association will assist in the development, correlation and integration of such plans. State welfare departments should consider the use of the insurance principle in caring for the indigent and medically indigent, rather than the present system. Industrial medical care plans on the voluntary principle must be investigated and developed under the guidance of constituent associations and component societies.

C. Expansion of public health and medical services consistent with the American system of democracy.

Careful study of the history of the development of medical care in various nations of the world leads to the inevitable conclusion that the introduction of methods such as compulsory sickness insurance, state medicine and similar techniques results in a trend toward communism or totalitarianism and away from democracy as the established form of government. The intensification of dependence of the individual on the state for the provision of the necessities of life tends to make the individual

more and more the creature of the state rather than to make the state the servant of the citizen. Great leaders of American thought have repeatedly emphasized the fact that liberty is too great a price to pay for security.

D. The allotment of such funds as the Congress may make available to any state in actual need for the prevention of disease, the promotion of health and the care of the sick on proof of such need.

The physicians of the United States have given freely of their time and of their funds for the care of the sick. Their contributions to free medical service amounts to at least \$1,000,000 a day. The physicians of this country have urged that every person needing medical care be provided with such care. They have urged also the allotment of funds for campaigns against maternal mortality, against venereal disease and for the investigation and control of cancer. The medical profession does not oppose appropriations by Congress of funds for medical purposes. It feels however that, in many instances, states have sought aid and appropriations for such functions without any actual need on the part of the state, in order to secure federal funds as might be available. It has also been impossible, under present techniques, to meet actual needs which might exist in certain states with low per capita incomes, with needs far beyond those of wealthier states, in which vast sums are spent.

It is proposed here simply that Congress make available such funds as can be provided for health purposes; that these funds be administered jointly by the county, state and federal health agencies, mentioned in section H of this platform, and that the funds be allotted to proof of actual need to the federal health agency, when that need is for the prevention of disease, for the promotion of health or for the care of the sick.

E. The principle that the care of the public health and the provision of medical service to the sick is primarily a local responsibility.

Obviously if federal funds are made available to the individual states for the purpose mentioned in section D of this platform, there might well be a lessened tendency in many communities to devote the community's funds for the purpose and, in effect, to demand that the federal government take over the problem of the care of the sick. Hence it is suggested that communities do their utmost to meet such needs with funds locally available before bringing their need to the federal health agency, and that the health agency determine whether or not the community has done its utmost to meet such need before allotting federal funds for the purpose.

F. The development of a mechanism for meeting the needs of expansion of preventive medical services with local determination of needs and local control of administration.

The medical profession wishes to extend preventive medical services to all people within the funds available for such a purpose. Obviously, this will require not only a federal health agency which may make suggestions and initiate plans but also a mechanism in each community for the actual expansion of preventive medical service and for the proper expenditure of funds developed both locally and federally. In the development of new legislation, such mechanism may be suitably outlined.

So far as preventive medicine and general measures of public health are concerned, there is great need for the increase of county or district departments of health. There are still too many areas without such coverage. Every area in the United States should have a health service with adequate personnel and facilities to render the service necessary to each community. It should be integrated with and coordinated by the state health department. Federal funds may be used to help establish these departments where local funds are inadequate, but the management should be under state and local authority.

G. The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.

Medical Association has already recognized the existence of a group of persons able to provide themselves with the necessities of life commonly recognized as standard in their own communities but not capable of meeting a medical emergency. Hence, it is the platform of the American Medical Association that medical care be provided for the indigent and the medically indigent in every community but that local funds be first utilized and that local agencies determine the nature of the need and control the expenditure of such funds as may be developed either in the community or by federal government, as they are the most capable of determining the needs. Emergency and migratory labor may be a temporary federal responsibility. The use of the voluntary insurance principle should be considered by all agencies distributing medical care.

H. The establishment of an agency of federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.

Today the medical and health functions of the United States are divided among a multiplicity of departments, bureaus and federal agencies. Thus, the United States Public Health Service and the Food and Drug Administration are in the Federal Security Agency; the Children's Bureau in the Department of Labor; the Veterans' Administration and many other medical functions are separate bureaus of the government.

Since 1875 the American Medical Association has urged the establishment of a single agency in the federal government under which all such functions could be correlated in the interest of efficiency, the avoidance of duplication and a saving of vast sums of money. Such a federal health agency, with a secretary in the cabinet, or a commission of five or seven members, including competent physicians, would be able to administer the medical and health affairs of the government with far more efficiency than is now done.

The Washington office of the Council was opened on April 3, 1944 at 1835 Eye Street N.W. Dr. Joseph S. Lawrence, Executive Officer of the Medical Society of the State of New York, was secured as a consultant and the development of the office placed under his direction. Reactions to this office have been favorable. Much needs to be done in organizing the states to cooperate with the office. Each state should designate a representative who will be the contact man with the Washington office so that information may be promptly circulated through the proper channels. Conferences with the states should be held at intervals to insure maximum efficiency in functioning. Two such conferences have already been held with the New England states and New Jersey. On June 11 another conference was held with other states here in Chicago. These conferences should be held from time to time in the future. Hence, the Council recommends that the proper organization of the Washington office should consist of a full time director, subject to the Council; that there should be a field agent whose duties it shall be to maintain personal contact with state associations and keep them informed of the activities of the Council; such clerical help as may be necessary and, eventually, a legal adviser, who at first will be on a part time basis. There will be close collaboration between the Washington office and the Bureau of Legal Medicine and Legislation.

The Council realizes that it has been criticized because it has moved slowly with reference to the Washington office. We feel that it has been most important to move slowly so that anything done would not have to be undone. The matter is now on a solid basis which will result in a constructive program and redound to the credit and benefit of the Association. One hasty action might well have set us back years.

The bulletins issued by the Council have been well received, but they can be improved on. When the Washington office is functioning with a full time staff, great improvement can and will be made in them.

The Council regrets to announce that Dr. G. Lombard Kelly, who has been secretary since January 1, feels that he cannot continue after July 1. We are all grateful to Dr. Kelly for the sacrifice he made in helping us out.

It is hoped that a new secretary will be available shortly. If the House approves the recommended amalgamation of the Bureau of Medical Economics with the Council, a provision should be made that the Director of the Bureau could be, though not necessarily, the Secretary of the Council as well.

Respectfully submitted,

LOUIS H. BAUER, Chairman.
EDWARD J. MCCORMICK, Vice Chairman.
ALFRED W. ADSON.
JOHN H. FITZGIBBON.
W. S. LEATHERS.
ROGER I. LEE.
JAMES R. McVAY.
JAMES E. PAULLIN.
FRED W. RANKIN.
OLIN WEST.
G. LOMBARD KELLY, Secretary.

Report of War Participation Committee

Dr. Walter F. Donaldson, Chairman, presented the report of the War Participation Committee as presented in the Handbook, which was referred to the Reference Committee on War Participation.

Report of Committee on Postwar Medical Service

Dr. Roger I. Lee, Chairman, presented the following report of the Committee on Postwar Medical Service, which was referred to the Reference Committee on Postwar Planning:

At the meeting of the Board of Trustees on Feb. 18 and 19, 1943 Dr. Paullin, President-Elect, presented a plan for postwar medical service. The Board of Trustees endorsed the suggestion that the American Medical Association take leadership in the matter, with the cooperation of the American College of Physicians and the American College of Surgeons. The Board of Trustees voted that a Committee on Postwar Medical Service be established to consist probably of eight or ten members; that the nucleus of the committee should be Dr. Lee, Dr. Paullin, General Rankin and Dr. Shoulders, who should have the privilege of naming the other members and of further enlarging the committee if it seemed advisable to do so, and that the Secretary and General Manager and the Editor should meet with the committee.

The four members of the committee forming the nucleus named as additional members Drs. F. G. Blake, Warren F. Draper and Alan Gregg and a Navy representative, who at first was Captain Agnew and who now is Captain Eaton.

The American College of Physicians named as its representatives Drs. E. L. Bortz, W. B. Breed, E. E. Irons, W. W. Palmer, J. E. Paullin and G. M. Piersol.

The American College of Surgeons named as its representatives Drs. Irvin Abell, A. W. Allen, F. A. Collier, E. A. Graham and James M. Mason.

The first meeting of this joint committee was held in Chicago on June 5, 1943. It was largely exploratory, and the general objectives were discussed. The matter came before the House of Delegates in the address of President-Elect Paullin, which was referred to a reference committee. The recommendation of that committee was adopted, i. e.:

"Your reference committee notes with enthusiasm the formation by the Board of Trustees of the temporary Committee on Planning of Postwar Medical Service, which action it recommends be approved by the House of Delegates.

"Your reference committee further recommends that the Board of Trustees be instructed to make this a permanent Committee on Planning of Postwar Medical Service to cooperate and collaborate with other agencies concerned with these problems."

The committee has been active and has held five meetings in Chicago, Washington and New York. Another meeting is scheduled for Wednesday, June 14, of this session.

Abstracts of the proceedings of the committee have duly appeared in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

As discussion developed concerning the committee program as a whole, "it was voted to invite representation on the committee from the Association of American Medical Colleges, the American Hospital Association, the Catholic Hospital Association, the Federation of State Licensing Boards, the Procurement and Assignment Service and the Advisory Board for Medical Specialties." The committee had previously invited a representative from the Veterans Administration. At the last meeting of the committee, the problem of further enlarging the committee was discussed, in view of numerous requests from various organizations for representation. The committee voted not to add representatives from additional groups for the present. It felt that at this time it was functioning well as a committee and that further enlargement now might defeat the original purpose and change the committee into a conference.

In this connection, the Chairman was requested by the committee to lay emphasis in his report to the House of Delegates of the American Medical Association on the importance of collaboration between this committee and the state medical societies. Some of the state medical societies have active committees on postwar medical services. These activities cover a wide range. Furthermore, the Chairman was requested to stress in his report collaboration with Procurement and Assignment officers and offices in each state. The records of Procurement and Assignment are of singular value in arriving at satisfactory estimates as to the number of physicians needed in different areas of each state. In this collaboration the War Participation Committee of the House of Delegates of the American Medical Association and the state committees will be very useful. On invitation of the committee, Dr. Walter F. Donaldson, Chairman of the War Participation Committee of the American Medical Association was present at one of the meetings of the committee.

The committee's discussions ranged widely over the field of postwar medical service. Already, with the approval of the Surgeons General of the Army, Navy and Public Health Service, a pilot questionnaire was sent to 3,000 medical officers in these three services. This was carried out by a subcommittee consisting of Drs. Abell, Mason and West, who had the invaluable assistance of Lieutenant Colonel Lueth, Surgeon General's Liaison Officer, who has an office in the Headquarters of the American Medical Association. At the meeting on April 29, Lieutenant Colonel Lueth was able to present some very illuminating data. Authorization has now been obtained to send a somewhat revised questionnaire to all the medical officers in the Army, Navy and Public Health Service. I think it is safe to say that this questionnaire will receive a very favorable response. It will make the medical officers feel that they are not forgotten men. Obviously, the data derived from these questionnaires will be of fundamental importance in determining what direction the committee's activities should take in meeting the needs of the returning medical officers.

The data from these questionnaires should indicate the size, scope and type of postgraduate instruction at the various levels of intern, resident and specialist training, and of other forms of postgraduate instruction required. The Council on Medical Education and Hospitals of the American Medical Association is already at work in this field.

The committee approached the Board of Trustees of the American Medical Association concerning the advisability of an information service, presumably at the headquarters office. The Board of Trustees reported that it desired to cooperate in the maintenance of an information service, which, however, should not have the function of a placement bureau but should act merely as a source of information. Preliminary steps have already been taken to inaugurate such an office of information.

As I have already stated, much of the discussion of the committee has been exploratory and has covered a wide range of possibilities. The committee is not unmindful that the war is not yet over and that, as it continues, problems change and very likely will be not only more numerous but more difficult. Some of these problems may well be modified by legislative enactments, both federal and state.

The committee submits this report as a record of a year's humble but earnest endeavor.

Supplementary Report of Board of Trustees

REPORT OF COMMITTEE TO STUDY THE RELATIONSHIP OF MEDICINE AND LAW

Dr. Roger I. Lee, Chairman, presented the following report of the Committee to Study the Relationship of Medicine and Law, which was referred to the Reference Committee on Legislation and Public Relations:

Of the many relationships that exist between medicine and law, none in the opinion of this committee, are more important than those closely integrated medical and legal activities that have as their common purpose the protection of society against the wilful or wanton destruction of human life. In viewing this problem the attention of the committee was attracted by the ineffectual character in many states of the medical participation in this effort as it is represented by the activities of the coroner or his official equivalent.

To orient the functions of coroners or medical examiners in the administration of criminal justice it would be well first to consider the problem as a whole. Except in a few special circumstances the taking of a human life through negligence or with intent constitutes one of the most serious offenses that it is possible to commit against organized society. The law defines the circumstances in which homicide is a crime, prescribes how and by whom deaths known or suspected to have resulted from homicide shall be investigated, how and by whom the person or persons suspected of guilt shall be arrested, charged and tried, and how and by whom they shall be punished if found guilty. The procedure by which the dictates of the law are complied with when homicide is known or suspected to have occurred is normally divided into two phases.

The first is inquestual and has for its purpose the acquisition and appraisal of evidence. The second is judicial and consists of a trial by jury of the person or persons who have been charged with the crime.

The initial fact-finding phase of the inquestual procedure is primarily medical and is activated by the finding of a dead body. Whose corpse is it? When did death occur? How was it caused? If it resulted from violence, is the nature of the fatal injuries such as to indicate the manner in which they were incurred? It is obvious that the police participation in such an investigation must often await and must always be integrated with the medical investigation. It is also apparent that the quality of justice depends on the promptness and competence with which this investigation is conducted.

According to the law throughout most of the United States, both the acquisition and the initial magisterial appraisal of evidence relating to deaths known or suspected to have resulted from homicide are the responsibility of the office of county coroner. The office of coroner was transplanted from England to North America in the early Colonial period. Originally, in England, the coroner was the conservator of the peace and since at that time little or no investigative help could be expected from the police or the medical profession the arrangement was probably a good one.

With the passing of the centuries various changes have occurred which make the ancient office of coroner with its combined medical and legal functions unsuited to participate effectively in the administration of justice. One such change responsible for the outmoding of the coroner's office as originally constituted is the development of law enforcement agencies as represented by the police and the office of public prosecutor. There now exists in every jurisdiction a police organization that is not only more competent than the coroner's office in acquisition of nonmedical evidence but also in the apprehension and arrest of criminals. There exists in every jurisdiction a public prosecutor whose qualifications are legal and whose duties are such that he is better fitted to look after the legal interests of the public in cases of suspected homicide than is the coroner. There exists in every jurisdiction an already established municipal, county or district court which is better constituted to conduct the magisterial functions of an inquest than is the coroner's court.

It is the opinion of this committee that a review of the various modifications of the office of county coroner now operating in the United States would be the best means of formulating plans

for improving those relationships between law and medicine that are concerned with the conduct of official investigations of the causes and circumstances of certain deaths in the interests of public welfare.

THE NAME OF THE OFFICIAL INVESTIGATOR, CORONER OR MEDICAL EXAMINER

In all or most jurisdictions of forty states¹ the responsible official is called the county coroner. In the following states some designation other than that of coroner is employed:

Maine, Medical Examiner.
Maryland, Medical Examiner.
Massachusetts, Medical Examiner.
New Hampshire, Medical Referee.
New Jersey, Medical Examiner in some jurisdictions.
New York, Medical Examiner in some jurisdictions.
Rhode Island, Medical Examiner.

COMMENT.—Obviously the name under which the medical investigator operates has little or no bearing on the effectiveness with which his public duties are discharged. If the law requires first that he be professionally competent and second that he have both the authority and the facilities for the conduct of such investigations as are required in the interest of public welfare, the name of his office is inconsequential.

DUTIES OF THE CORONER OR MEDICAL EXAMINER

In all states there are laws which provide that certain types of death shall be the subject first of an investigation to determine the causes and circumstances thereof, and second of a magisterial inquiry or inquest to determine what subsequent steps shall be taken in the interests of law enforcement.

Medical Duties.—It is invariably the duty of the coroner or his official equivalent to conduct an inquiry to determine the cause and circumstances of deaths known or suspected to have resulted from criminal or negligent acts. The law usually requires that he go to the place where the body lies and take immediate charge of it. As a rule the law states that he shall view the body and the premises where it lies. In addition to viewing the body he may be empowered by law to perform or to have performed an autopsy if he, his jury or the county attorney decrees such a procedure necessary.

It is invariably the intent of the law not only that the true cause of death be established with the greatest possible precision but also that all evidence pertaining to the circumstances thereof be acquired.

Number of Coroner's Cases per Unit of Population.—According to the annual reports of the director of the bureau of census, approximately 1 death in each 10 occurring in the United States results from a violent or unnatural cause. Of each 100 such deaths investigated it is found that approximately 80 result from accidents, 15 from suicide and 5 from homicide. In addition to the 10 per cent of all deaths that require official investigation because they are known or suspected to have resulted from unnatural or violent causes the medical examiners' reports of Massachusetts, New York City and Newark, N. J., indicate that an additional 10 per cent of each year's deaths result from causes so obscure that investigation sufficient to exclude causation by violence is essential to public welfare. Thus it appears that approximately 20 per cent of all deaths occurring in the registration area of the United States occur from causes or in circumstances such as to merit official inquiry.

Number of Official Autopsies Likely to Be Required in the Interests of Public Welfare.—In many states the law states that only such deaths shall be investigated as are known or suspected to have resulted from the criminal or negligent act of another person. In some instances viewing the body and questioning witnesses provide sufficient evidence that death resulted from natural causes. In rural communities, where the official investigator is likely to have ready access to relatively trustworthy sources of information, a large proportion of all deaths reported as having been due to obscure causes can be disposed of by viewing and questioning without the performance of an autopsy. In metropolitan districts, in which the investigator is less likely

to have access to reliable sources of information, it is necessary to perform autopsies in a higher proportion of cases.

For each hundred thousand inhabitants it can be estimated that the medical duties of the coroner or medical examiner will include an inquiry and a view of the body in about 200 deaths per year. In urban areas the interests of public welfare will require the performance of autopsies in at least 20 to 25 per cent of all investigated cases, whereas in rural areas official autopsies in the interests of justice are likely to be necessary in between 10 to 15 per cent of the total number of medicolegal deaths investigated.

Legal Duties.—In all or most jurisdictions of forty-seven states the coroner or his equivalent has certain legal duties in addition to the medical functions described in the preceding paragraph. In thirty-seven states he is authorized or required to impanel a jury, subpoena witnesses, administer oaths, take medical as well as nonmedical evidence, deliver a verdict, and he may issue a warrant for the arrest of the person or persons to be held for trial.

In Massachusetts the medical examiners' responsibilities are almost exclusively medical. In Maine, Rhode Island, Maryland, certain jurisdictions of New York, and Essex County, N. J., coroners have been replaced by medical examiners who have been relieved of most if not all of the coroner's magisterial duties.

Miscellaneous Duties.—The laws of the various states frequently require the coroner or his equivalent to discharge a variety of additional quasimedical or quasilegal duties. These vary from arranging for the burial of paupers to arresting the sheriff.

COMMENT.—There is no doubt that the law should provide for both medical and legal participation in the investigation of deaths suspected to have resulted from homicide. The former is a highly technical fact-finding procedure that can be discharged only by a properly qualified medical expert. The latter is a preliminary quasijudicial hearing of all evidence, medical and nonmedical, in order that the machinery of justice may be set in motion, and it should be conducted by a legally competent magistrate.

Every county or state government should provide for the existence of professionally competent official medical investigators, and it makes no difference whether they are called coroners or medical examiners. The duties of such officials should be medical and not legal. The magisterial duties for which the coroners are commonly held responsible should be transferred to other already existing public agencies whose duties and qualifications render them competent in such matters.

QUALIFICATIONS OF OFFICIALS RESPONSIBLE FOR THE INVESTIGATION OF DEATHS IN THE INTERESTS OF PUBLIC WELFARE

In Louisiana, Maine, Maryland, Massachusetts, Ohio, Rhode Island and Virginia the official held responsible for the instigation and direction of postmortem investigation when death is known or suspected to have resulted from criminal violence is required by state law to be a physician. Provisions for the official participation of a medically qualified investigator in the coroner's inquest exist in certain jurisdictions of California, Connecticut, Minnesota, Michigan, Nebraska, New Hampshire, New Jersey, New York and Vermont, and perhaps in a few other localities.

In all or most jurisdictions of forty-one states² the coroner is not required by law to be a physician. In rural districts the office is frequently occupied by an undertaker. In many of the larger cities the office is held by a layman whose qualifications are neither medical, legal nor administrative.

COMMENT.—In counties in which the coroner is not a physician and does not regularly employ a physician in the conduct of inquests it is a reasonable inference that deaths by homicide commonly escape recognition, that scientific evidence essential to the administration of justice is regularly overlooked and that innocent persons are not infrequently charged with crimes that they did not commit.

1. In some or all jurisdictions of Alabama, Nebraska, Vermont and Washington the office of coroner has been abolished and its duties have been absorbed by other county officials.

2. All but Louisiana, Maine, Maryland, Massachusetts, Ohio, Rhode Island and Virginia.

It is obvious that the law should require that the office of coroner or medical examiner be occupied by a physician. It is equally obvious that he should either be a qualified pathologist or be required to employ the services of a qualified pathologist for the performance of autopsies.

Wherever doctors are responsible for the establishment and maintenance of organized medical facilities for the care of the sick, provision is almost invariably made whereby a physician who is skilled in the science of pathology is made responsible for the performance of autopsies. Without in any way detracting from the importance of autopsies performed for scientific or educational reasons it should be pointed out that only when an autopsy is medicolegal is it likely to have an immediate and direct effect on the life, liberty or property of some person. On the outcome of a medicolegal autopsy may depend the life or freedom of a suspected person. On the outcome of a medicolegal autopsy may depend the indemnification of a widow or the liability of an employer or an insurer. With such issues at stake it is strange indeed that only when an autopsy is performed in the interests of justice is it entrusted in many instances to some one lacking proper qualifications for its conduct.

In considering the precise nature of the qualifications that the law should require of official investigators, account should be taken of two facts. One is that not all types of medicolegal investigation require the same degree of specialized expertness on the part of the investigator. The other is that both the availability of and the need for specially trained expert pathologists differ according to the density of the population.

The preliminary investigation of any given death in the interests of public welfare requires that the body be viewed and that such information concerning the possible cause and circumstances of death that can be obtained from relatives, associates, physicians or others be collected and its medical significance appraised. It is not essential that this phase of the investigation be conducted by a skilled pathologist, although it is essential that the investigator be a qualified physician. In small towns and in rural areas where the services of a skilled pathologist are not immediately available the selection of a practicing physician or surgeon for the conduct of the preliminary phase of the investigation is usually both necessary and desirable.

In between 70 and 80 per cent of medicolegal deaths occurring in rural areas it is likely that adequate evidence from a legal standpoint will be obtained without the performance of autopsies. The law should provide, however, that if it is necessary to perform an autopsy the local medical investigator shall be required to employ the services of an experienced pathologist for its conduct.

In Maryland, local medical investigators (county medical examiners) are required to call on the state pathologist (chief medical examiner) or some person designated by him for the performance of medicolegal autopsies. In Vermont the duties of the coroner are exercised by justices and state's attorneys and, if an autopsy is deemed necessary, the law requires that it shall be performed by the pathologist of the state hygiene laboratory or under his direction. In Maine, Massachusetts and Michigan it is optional with the local medical examiner (or coroner) whether or not he shall call on a state pathologist for the performance of medicolegal autopsies. In Maine the state pathologist serves as an assistant to the attorney general and in Massachusetts as an assistant to the commissioner of public safety. In Michigan the consultation services of the medicolegal director of the state police are available to county coroners for the performance of medicolegal autopsies.

The advantage of specifying that certain pathologists shall be the official medicolegal consultants rather than that the local medical investigator may call any pathologist lies in the fact that competence in forensic pathology bears a certain direct relationship to experience. Other things being equal, the pathologist who performs an occasional medicolegal autopsy is less likely to be proficient in the acquisition of medicolegal evidence than one who is regularly engaged in such work.

In metropolitan areas the medical investigator is less likely to have personal access to reliable information regarding the

death of any given person than is the case in the country or in small towns. Hence the medical investigator in the city must depend more on objective evidence and must consequently perform autopsies in a higher proportion of the deaths investigated by him. Furthermore, there are relatively few if any urban areas of more than 100,000 inhabitants in which the services of an experienced pathologist are not available. For these reasons the law should require that official medical investigators in cities of more than 100,000 inhabitants shall be experienced pathologists.

In New York City the medical examiner is required to "be a doctor of medicine and a skilled pathologist and microscopist." In Maryland the chief and assistant state medical examiners "shall have had at least two years' postgraduate training in pathology," whereas the deputy examiners who conduct investigations in rural districts but do not perform autopsies are practicing physicians and are not required to be trained in pathology.

LEGAL DEFINITION OF DEATHS WHICH SHALL BE THE SUBJECT OF OFFICIAL MEDICOLEGAL INVESTIGATION

In thirteen states³ the coroner or his equivalent is authorized to investigate only such deaths as are supposed to have resulted from the criminal act of another person. Thus, for example, in Tennessee the law stipulates that only when "there is good reason to believe that such person came to his death by unlawful violence at the hands of some other person" shall an investigation be in order. In Michigan an investigation is justified when "there is good reason to believe that murder or manslaughter has been committed." In Nebraska and South Dakota an official inquiry can be made on the "dead bodies of such persons only as are supposed to have died by unlawful means."

In the remaining thirty-four states the laws pertaining to the investigation of deaths in the interests of public welfare are less restrictive. A variety of qualifying phrases has been introduced so that investigations can be instituted even though there is insufficient evidence to justify a positive assumption that death resulted from homicide. Thus such adjectives or phrases as "mysterious," "untimely," "sudden," "unnatural," "violent," "by casualty," "by accident," "by poisoning," "from obscure causes," "found dead," "unattended," "by suicide" are encountered. In many states the law requires that all or certain types of deaths occurring in institutions supported by public funds shall be the subject of official medicolegal inquiry. In certain states medicolegal investigation is prerequisite to cremation.

COMMENT.—In order to formulate a satisfactory law for defining the kinds of death that shall be the subject of an official medicolegal investigation, the purpose for which such investigations are conducted should be considered.

It is essential that the law provide for a mechanism by which deaths from homicide will not escape recognition. By restricting medicolegal investigations to deaths "supposed" to have resulted from criminal violence there are excluded from investigation many deaths which, although they have occurred under suspicious circumstances and from obscure causes, cannot actually be "supposed" to have resulted from the criminal act of another person. The most that can be said in many instances is that there is no evidence to indicate that death has resulted from natural causes and that the very absence of information may reasonably justify a suspicion if not a supposition that death has resulted from violence. In localities in which the law requires that there be positive evidence to support a supposition of homicide before an official investigation can be instituted, there is not the slightest doubt that many deaths by homicide escape recognition.

Of the various state laws that can be characterized as adequate the New Jersey statute is one of the best. According to it "When, in the county, any person shall die as a result of violence or by casualty or suicide, or suddenly when in apparent health, or when unattended by a physician, or within twenty-four hours after admission to a hospital or institution, or in prison, or in a suspicious or unusual manner, the police department of the municipality in which he died, the superintendent or medical director of the institution in which he died, or the physician called in attendance shall immediately notify the office of the chief medical examiner of the known facts concerning the time, place, manner and circumstances of the death. Immediately upon receipt of such notification the chief medical examiner, or an assistant medical examiner, shall fully investigate the essential facts. If necessary he shall go to the dead body and take charge thereof." This law would be improved by the incorporation of a provision requiring medicolegal investigation of deaths of persons whose bodies are to be cremated.

SOURCE OF AUTHORITY FOR THE PERFORMANCE OF MEDICOLEGAL AUTOPSY

In two states (Maine and Maryland) the authority for ordering the performance of an autopsy incident to the conduct of an official medicolegal inquiry rests with a medically qualified official.

In most jurisdictions of thirteen states (Louisiana, Massachusetts, New Hampshire, Ohio, Oregon, Vermont, Rhode Island, Utah, Alabama, Iowa, Nebraska, Washington and Virginia) the authority for ordering an autopsy rests with a state or county attorney, with a court, or with some nonmedical administrative body, other than that represented by the coroner's office.

In four states (Colorado, Florida, Georgia and Illinois) the law stipulates that an autopsy may, or shall only, be authorized by order of a coroner's jury.

In five states (Idaho, Mississippi, Montana, Nevada and New Mexico) the statutes are not explicit in the matter of who has the authority to order an official medicolegal autopsy.

In all or most jurisdictions of the remaining twenty-four states⁴ the authority for ordering an autopsy rests with a county coroner who may or may not be a physician.

COMMENT.—In many instances the medical evidence required in the interests of justice is obtained without the necessity of performing an autopsy. Frequently, however, neither the inspection of the body nor information gained from witnesses is adequate for distinguishing between death from natural causes and death from violence. In such an event the person best qualified to give a medical opinion as to whether or not an autopsy should be performed is the medical investigator himself. So long as he is held responsible by the law to determine the cause of death he should have the authority to perform or have performed an autopsy when in his opinion such a procedure is indicated by the facts at hand. However, the medical investigator should be required to hold an autopsy if such an examination is requested by the public prosecutor.

The Maryland law is partially satisfactory in this respect in that it stipulates that, "If the cause of such death shall be established beyond a reasonable doubt, such medical examiner shall so report and file in his office. . . . If, however, in the opinion of such medical examiner, an autopsy is necessary the same shall be performed by the chief medical examiner, an assistant medical examiner, or by such competent pathologists as may be authorized by the chief medical examiner." The law would be improved if the second sentence was rephrased to read "If, however, in the opinion of such medical examiner or in the opinion of the state's attorney, an autopsy is necessary. . . ."

It should be borne in mind that an autopsy is often necessary even though the cause of death is obvious. It is regularly a valuable source of evidence pertaining to the circumstances of death and frequently to the identity of the assailant. Thus, the recovery of a bullet or a determination of the alcohol content of the victim's brain may provide important evidence even though the cause of death was apparent without autopsy.

4. Arizona, Arkansas, California, Connecticut, Delaware, Indiana, Kansas, Kentucky, Michigan, Minnesota, Missouri, New Jersey, New York, North Carolina, North Dakota, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, West Virginia, Wisconsin, Wyoming.

METHODS OF SELECTION OF OFFICIAL MEDICAL INVESTIGATORS

The methods by which coroners or their equivalents are selected in the United States fall into the following five general categories:

1. Periodic election by popular vote.
2. Patronage appointment.
3. Appointment by a municipal, county or circuit court.
4. Selection by a civil service commission on a basis of competitive examination.
5. Selection by a nonpolitical, self-perpetuating commission of experts on a basis of professional merit.

1. *Periodic Election by Popular Vote.*—In all or most jurisdictions of thirty-six states⁵ the coroner or his equivalent is elected by vote of the general electorate for periods that vary between two and four years. In some states the coroner is elected on a partisan and in others on a nonpartisan ballot.

2. *Patronage Appointment.*—In some or all jurisdictions of at least eight states the coroner or medical examiner is appointed under some form of the patronage system as follows:

Connecticut: Coroners are appointed for three years by judges of the superior court on recommendation of the state's attorney. His duties are magisterial, and the law authorizes him to appoint a medical examiner who holds office at the pleasure of the coroner.

Maine: Medical examiners are appointed by the governor with the advice and consent of his council for a term of four years.

Massachusetts: Medical examiners are appointed by the governor with the advice and consent of his council for a term of seven years.

New Hampshire: Medical referees are appointed by the governor with the advice and consent of his council for a term of five years.

New Jersey: In certain jurisdictions medical examiners are elected by the Board of Freeholders.

New York: In certain jurisdictions medical examiners are appointed by the district attorney.

Rhode Island: Medical examiners are appointed by the attorney general and hold office at his pleasure.

Tennessee: Coroners are elected by justices of the peace.

3. *Appointment by a Court.*—In three states the coroner or his equivalent is selected by a court.

Vermont: A physician may be designated medical examiner, pro tem, by the magistrate of a county or municipal court.

Virginia: The coroner is appointed by the judge of a corporation or circuit court for three years.

West Virginia: The coroner is appointed by the county court to hold office at the pleasure of said court.

4. *Selection by Civil Service.*—In New York City medical examiners are appointed by the mayor from the civil service list on a basis of competitive examination. According to section 1570 of the Greater New York charter "The head of the office shall be called chief medical examiner. He shall be appointed by the mayor from the classified service and be a doctor of medicine and a skilled pathologist and microscopist." In certain jurisdictions of California, appointments to the coroner's office are made from civil service lists.

5. *Selection by Special Commission.*—In Maryland a state medical examiner system prevails and the medical examiner is appointed by a state board of postmortem examiners. The board is a self-perpetuating body of experts so constituted and with sufficient authority to insure the selection and maintenance in office of properly qualified investigators.

According to article 22 of the Annotated Code of Maryland:

Sec. 1. The Department of Post Mortem Examiners is hereby created and established. The head of said Department shall be a Commission, consisting of the Professor of Pathology of the University of Maryland, the Professor of Pathology of the Johns Hopkins University, the Director of Health of the State of Maryland, the Commissioner of Health of Baltimore City and the Superintendent of Maryland State Police. The members of said Commission shall serve without compensation and shall

5. Alabama, Arizona, Arkansas, California, Colorado, Delaware, Florida, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Montana, Nevada, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Texas, Utah, Washington, Wisconsin, Wyoming.

select one of its members as Chairman, and one as Vice Chairman, who shall act as Chairman in the absence or inability of the Chairman. (As amended, 1941, Laws of Maryland, chapter 6.)

SEC. 2. The said Commission is hereby authorized and directed to appoint three medical examiners, one to be known as Chief Medical Examiner, at an annual salary of \$6,500, and the other two as Assistant Medical Examiners, at an annual salary of \$5,000 each. The Chief Medical Examiner and the Assistant Medical Examiners shall be licensed Doctors of Medicine and shall have had at least two years' postgraduate training in pathology. The said Commission shall appoint, to such extent as may be authorized by the Board of Estimates of Baltimore City, such other professional or technical personnel, clerks and other employees as may be necessary for the proper administration of the Department and at such compensation as may be provided for by said Board of Estimates in the Ordinance of Estimates of Baltimore City. The salaries of said Examiners shall be included in the Ordinance of Estimates each year. Such other professional or technical personnel and the clerks and employees shall be appointed in accordance with the provisions of sections 268 to 284, inclusive, of the Baltimore City Charter (1938 Edition), known as the Merit System.

Nothing in this section shall be construed to prevent the Commission from employing the services of physicians on a contract basis for part-time service, as may be authorized by the Board of Estimates of Baltimore City. (As amended, 1941, Laws of Maryland, chapter 6.)

COMMENT.—The first three of the five selection methods enumerated are the ones most commonly employed in the United States and will hereafter be referred to as political. They share common faults in that none of them provide for selection on a basis of professional competence and all of them predispose to the periodic replacement of experienced and qualified public servants by inexperienced and unqualified persons.

The last two of the five selection methods enumerated, hereafter referred to as nonpolitical, provide for selection and retention in office on a basis of merit and tend to prevent those undesirable periodic dislocations of public service that are inevitable under the political methods of selection.

To appraise the relative merits of the political and nonpolitical methods for the selection of official medical investigators (coroner, coroner's physician, deputy coroner or medical examiner) it is necessary to consider for a moment the nature of the public service expected of them. They function as scientific, fact-finding agencies. Incompetence or partisanship on the part of such an official may be responsible for the nonrecognition of crime, for the nonprosecution of criminals, for the unjust prosecution of innocent persons and for miscarriage of justice in courts of civil law. Their functions are in no way policy forming.

There has been a growing recognition in this country of the fact that public servants whose duties are technical and not policy forming should be selected by different means than are employed for the selection of public servants whose duties include policy determination.

The former should be selected by some form of nonpolitical merit system, whereas it is both appropriate and essential to the survival of a constitutional democracy that public servants whose functions include policy determination be selected by one of the various political methods already enumerated. The attitude of the federal government toward the merit system for selection of public officials is embodied in the executive order of June 24, 1938 (7916) in which it was stipulated that all except (1) those positions already exempted by statute, (2) policy determining positions and (3) other positions which special circumstances require shall be exempted, shall be brought into the competitive classified civil service.

It is a fact that medical science participates less effectively in the administration of justice in the United States than it does in any comparable civilized country in the world. An important if not the principal cause of this deplorable condition is the fact that official medical investigators are selected in most states by political methods rather than by the merit system. The practice of selecting official medical investigators by direct vote of the electorate or by some form of political patronage has led to the systematic scrapping of invaluable experience, has placed persons in office who are not only inexperienced but not infrequently incompetent as well, has predisposed to partiality in the conduct of public business and has discouraged from entering public service the very kind of physician that should be engaged in this important type of work.

It is the opinion of this committee that the selection of coroners and medical examiners should be made under some form of the merit system rather than by popular vote or by political patronage.

COST OF INVESTIGATING DEATHS IN THE INTERESTS OF PUBLIC SAFETY

It may be assumed that it is the intent of the law in all states to provide a mechanism whereby deaths by criminal violence will not escape recognition and whereby deaths from natural causes or casualty will not lead to the erroneous assumption of homicide.

The annual per capita cost of this service to the taxpayers in the various communities from which such information is available varies from 0.3 to 9.3 cents. This variation in cost is due in part to differences in the statutory definition of the kind of procedure to be followed, in part to the extent to which the different official investigators attempt to comply with the true intent of the law, in part to geographic and population differences in the various communities, and in part to the amount of money allocated for this particular purpose.

An important factor in determining the per capita cost of maintaining a coroner's or medical examiner's office is the number of cases that the law requires to be investigated. The laws of some states are such that approximately 20 per cent of all deaths come under the purview of the coroner or medical examiner, whereas in others the laws are such that less than 5 per cent of the deaths require official investigation.

In some states the law restricts medicolegal investigation to deaths in which there are positive grounds for suspecting criminal violence. Such cases rarely constitute more than 5 per cent of the total number of deaths. In other states investigations are restricted to deaths supposed to have resulted from violence, both criminal or accidental. Deaths by violence constitute approximately 10 per cent of the total. In still other states the law requires that, in addition to deaths known or suspected to have resulted from violence, official inquiry shall be made in cases of unexpected death from obscure causes. In such jurisdictions approximately 20 per cent of all deaths become the subject of official investigation.

Other things being equal, the cost of the service is proportional to the number of deaths investigated. The per capita cost of investigating 20 per cent of all deaths should be several times as great as that of investigating 5 per cent. Although it is difficult to appraise the relative value of the services rendered under these different types of law, it is likely that the additional cost of investigating deaths from obscure causes and casualty is more than compensated by the information that is gained. Although it is not easy to assign a monetary value to a service that leads to the recognition of unsuspected crime and one that lessens the likelihood of innocent persons being unjustly charged with the responsibility for death, it may be assumed to be sufficiently great to offset the apparent economy of an unwisely restrictive enabling statute.

Another important factor in determining the cost of investigating deaths in the interests of public welfare is the professional qualification that the law requires of the official investigator. In those counties in which it is required by law that the investigative official be a qualified physician, it is to be expected that the cost of his services will be higher than in counties where this essentially medical duty is left to an unqualified layman. The fees for lay investigators are generally lower than the fees demanded by qualified medical investigators. Most of every tax dollar spent to pay an unqualified investigator is wasted so far as the acquisition of reliable medical information is concerned. Such a saving cannot be truly regarded as economical even though the primary cost is less than that of employing a physician.

COMPARATIVE COSTS OF CORONER'S AND MEDICAL EXAMINER'S OFFICE

The facts needed for the preparation of a comprehensive statistical survey of the annual costs of the various coroner and medical examiner offices throughout the United States are not available. However, the data secured from various coroners and medical examiners, county and state treasurers and certain state, municipal and academic bureaus concerned with the investigation of the costs of county and city government have provided the committee with information concerning certain representative types of communities.

The annual per capita cost of investigating deaths in the interests of public safety in various types of communities is shown in the accompanying table. It appears that the average cost of the coroner's office in cities is approximately the same as that of the office of medical examiner. There is little or no difference between the cost of the two systems in communities that are essentially rural. In the case of large cities an examination of available budgets indicates that a large proportion of the total expense of the coroner's office represents the costs of its various administrative and quasilegal activities with a relatively small outlay for medical and other technical services. In cities operating under the medical examiner system the reverse is the case and the medical and technical costs constitute a larger part of the total budget.⁶

It should be borne in mind that the figures do not represent different costs of the same kind of public service. It is the undocumented impression of the committee that there is relatively little correlation between the amount of money spent and the value of the public service rendered. However, it is the impression of the committee that a per capita cost of between

in office under some form of the merit system rather than by political preference.

4. That the official investigator shall be notified when in his county (or jurisdiction) any person shall die of violence or suddenly while in apparent health or from obscure causes or when unattended by a physician or in any unusual or suspicious manner, or when in his county or jurisdiction the body of any dead person is to be cremated. Immediately on receipt of such notification the official investigator shall go to the place where the body lies and take charge of it. He shall then and there make a written description of the body and the premises, which report, together with an opinion regarding the cause and manner of death, he shall have copied and within seven days give one copy to the county attorney.

5. That, if in the opinion of the official investigator or the county or state's attorney it is in the interests of public welfare to perform an autopsy on the body of a person whose death occurs under the purview of the law, such an examination shall be performed or caused to be performed by the official investigator.

Comparative Cost of Coroner and Medical Examiner Systems

Coroner System			Medical Examiner System		
Metropolitan (City or County)	Population (in Thousands)	Per Capita Cost (in Cents)	Metropolitan (City or County)	Population (in Thousands)	Per Capita Cost (in Cents)
Cook County, Chicago.....	4,063	5.2 (1940)	New York.....	7,450	2.5 (1942)
Los Angeles County.....	2,785	2.1 (1941)	Suffolk County, Boston.....	863	5.4 (1940)
Wayne County, Detroit.....	2,015	4.6 (1941)	Baltimore.....	260	2.7 (1910)
Philadelphia.....	1,930	9.3 (1943)			
Allegheny County, Pittsburgh.....	1,400	7.0 (1942)			
Cuyahoga County, Cleveland.....	1,200	3.2 (1940)			
St. Louis.....	816	4.9 (1940)			
San Francisco.....	630	9.4 (1940)			
Urban and Rural (County)			Urban and Rural (County)		
Antrim, Mich.	10	1.3 (1931)	Calvert, Md.	9	3.2 (1942)
Cass, Mich.	22	1.0 (1931)	Garrett, Md.	20	2.5 (1942)
Iron, Mich.	21	3.4 (1931)	Howard, Md.	16	3.7 (1942)
Kent, Mich.	240	3.4 (1931)	Kent, Md.	14	1.9 (1942)
Lucé, Mich.	6	1.9 (1931)	Queen Anne, Md.	15	3.4 (1942)
Roscommon, Mich.	2	3.3 (1931)	St. Mary, Md.	15	1.6 (1942)
Itaska, Minn.	33	1.5 (1941)	Somerset, Md.	23	2.5 (1942)
Jackson, Minn.	17	1.0 (1941)	Barnstable, Mass.	30	2.3 (1938)
Kanabec, Minn.	10	0.4 (1941)	Berkshire, Mass.	121	1.5 (1938)
Kandiyoki, Minn.	17	1.4 (1941)	Dukes, Mass.	6	1.9 (1938)
Kittson, Minn.	10	0.3 (1941)	Franklin, Mass.	62	1.5 (1938)
Koochiching, Minn.	17	1.1 (1944)	Hampshire, Mass.	75	1.6 (1938)
Lac Qui Parle, Minn.	16	1.6 (1941)	Nantucket, Mass.	4	2.1 (1938)
Lake, Minn.	7	6.0 (1941)	Hampden, Mass.	334	2.2 (1938)

2 and 3 cents per annum is the least figure for which any community can expect to maintain an adequate public agency for investigating deaths. An annual per capita cost of between 5 and 6 cents more nearly represents the amount required to insure an adequate investigative service.

MODEL LEGISLATION

The kind of laws to be enacted will vary according to whether the office is (1) to be kept strictly on a county basis without being integrated with a state laboratory service, (2) to be on a county basis but integrated with a state laboratory service and (3) to be a function of state rather than county government.

Regardless of the jurisdictional status of the office (state or county), the laws should provide:

1. That the official investigator (coroner or medical examiner) shall be responsible for determining the cause of death and such medical or other information from an examination of the body that may indicate the manner of death.

2. That it shall be the duty of a magistrate of a county or municipal court to hold an inquest if in the opinion of the official investigator or the county attorney such a procedure is indicated.

3. That it be stipulated that the official investigator shall be a qualified physician and that he shall be selected and retained

6. Thus in Boston (Suffolk County) the total cost of investigating deaths in the interests of justice is approximately \$47,000 per annum. Over 90 per cent of this amount is spent by the office of medical examiner, less than 10 per cent is required for the holding of inquests. The latter expenditure includes witness fees, clerk fees, and the estimated proportion of magistrate's time devoted to the holding of inquests.

6. That an official autopsy may be performed by the official investigator if he is a qualified pathologist and, if not, the official investigator shall engage the services of a qualified pathologist for the performance of such an autopsy.

7. That the official investigator may, within the limits of the funds supplied his office by the county budget commissioner, engage the services of a toxicologist to assist in the investigation of the cause or circumstances of any death coming within his purview.

8. That there be created (for the benefit of communities not already supplied with such facilities) a state consulting laboratory having professional and technical facilities for assisting official investigators in the conduct of pathologic and toxicologic investigations on the bodies of persons whose deaths come under the purview of the law.

CONCLUSIONS

On a basis of (a) a survey of the various state laws that define the manner in which medical knowledge and skill shall be utilized in the administration of criminal justice through the agency of the coroner or medical examiner, (b) consultation with the American Bar Association's Committee on Medico-Legal Problems and (c) consultation with various experts in the fields of legal medicine, law and law enforcement, your committee has come to the following conclusions:

1. That, throughout most of the country, medicine participates less effectively in the administration of justice in the United States than it does in any comparable country in the world.

2. That the ineffectual manner in which medical knowledge and skill are utilized in the administration of justice in many jurisdictions of the United States undoubtedly predisposes to:

- (a) The nonrecognition of murder.
- (b) The unjust accusation of innocent persons.
- (c) The improper evaluation of medical evidence bearing on the circumstances in which fatal injuries were incurred.
- (d) Failure to acquire medical evidence which would be useful in the apprehension of criminals.
- (e) Failure to acquire medical evidence essential to the administration of civil justice.
- (f) Ignorance of certain otherwise preventable hazards to public health, and
- (g) The impairment of the value of vital statistics.

3. That state and county medical societies should examine the laws that relate to the office of coroner or medical examiner in their respective communities with a view to securing such remedial legislation as may be desirable.

4. That consultation facilities should be made available through the Bureau of Legal Medicine and Legislation whereby the authorized representative of any state or county medical society may secure advice regarding the kind of remedial legislation pertaining to the office of coroner or medical examiner that would best serve the needs of the community in question.

Grateful acknowledgment is made to Hubert W. Smith, LL.B., M.D., for his assistance in searching out and compiling the statutes of the various states which refer to the establishment and function of coroners or medical examiners.

Respectfully submitted.

ALAN R. MORITZ, Chairman.
EDWARD R. CUNIFFE.
J. W. HOLLOWAY JR.
HARRISON S. MARTLAND.

Report of the Reference Committee on Rules and Order of Business

Dr. William R. Brooksher, Chairman, presented the following report, which was adopted on motion of Dr. Brooksher, seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried:

Your Reference Committee on Rules and Order of Business has surveyed the reports and resolutions to be presented to this session of the House of Delegates. These are numerous and consider matters of vital importance. Several of these resolutions and reports deal with the functions of the American Medical Association itself and should preferably be considered in executive session so as to be reflected to the public only after final deliberation and action by the House of Delegates.

Your reference committee would recommend therefore the following procedures:

1. That all resolutions concerned with the functions of the Board of Trustees and of the headquarters office of the American Medical Association be presented to the House of Delegates by title only and referred by the Speaker to the Reference Committee on Executive Session.

2. That the House of Delegates meet in executive session at 2 p. m. Tuesday, June 13, at which time the resolutions so referred will be read in full together with the report of the Reference Committee on Executive Session.

3. The attention of the House of Delegates is called to the number of elections now required for this session of Thursday, June 15. In addition to such elections as have previously been held, six members are to be elected to the Council on Medical Service and Public Relations according to the plan designated in the By-Laws. The Board of Trustees is instructed by the By-Laws to submit three nominees according to geographic distribution for each vacancy for varying terms of one, two and three years. To facilitate this election, which otherwise might be unduly prolonged, your Reference Committee on Rules and Order of Business recommends that the Board of Trustees be requested to prepare a ballot containing the entire list of eighteen nominees as provided in the By-Laws, this list to be submitted to the House of Delegates in regular order

and that each delegate indicate by voting for one person in each geographic group in order of his preference his choice for these six vacancies and that the two nominees receiving the most votes be elected to the three year term, the two receiving the second largest number of votes to be elected to the two year term and the two receiving the third largest number of votes to be elected to the one year term.

W. R. BROOKSHER, Chairman.
T. F. THORNTON.
F. L. LOVELAND.
T. A. FOSTER.
E. N. EWER.

NEW BUSINESS

Proposed Amendment to the Constitution and By-Laws Dealing with Apportionment of Delegates

Dr. Thomas A. Pitts, South Carolina, presented the following resolutions, which were referred to the Reference Committee on Amendments to the Constitution and By-Laws:

WHEREAS, The By-laws of the American Medical Association provide that the total membership of the House of Delegates of the American Medical Association shall not exceed 175; and

WHEREAS, The apportionment of delegates of the House of Delegates of the American Medical Association is made on the basis of membership alone with each constituent organization entitled to a minimum of one delegate; and

WHEREAS, Such an apportionment does not take into consideration the civilian population which the constituent associations serve or the geographic size of the various states; and

WHEREAS, Under the present method of apportionment one state (New York) has two more delegates than eighteen state societies (Arizona, Delaware, District of Columbia, Idaho, Kansas, Maine, Montana, Nevada, New Hampshire, New Mexico, North Dakota, Oregon, Rhode Island, South Carolina, South Dakota, Utah, Vermont, Wyoming) combined, and two states (Pennsylvania and Illinois) with a combined civilian population of 17.8 million are entitled to the same number of delegates as ten states (West Virginia, Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Tennessee) with a civilian population of 25.4 million; and

WHEREAS, The present method of apportionment of delegates is based on the apportionment of representatives in the United States House of Representatives but does not take into consideration the method of representation in the United States Senate; be it

Resolved, That the house of delegates of the South Carolina Medical Association petition the House of Delegates of the American Medical Association to amend its Constitution and By-Laws so that the minimum number of delegates to which each constituent organization is entitled shall be two instead of one; and be it further

Resolved, That in order to accomplish this result chapter I, section 3 of the By-Laws of the American Medical Association be amended to read as follows:

SEC. 3. APPOINTMENT OF DELEGATES.—At the annual session of 1925, and every third year thereafter, the House of Delegates shall appoint a committee of five on reapportionment, of which the Speaker and the Secretary shall be members. The committee shall apportion the delegates among the constituent associations in accordance with Article 5, Section 3, of the Constitution, and in proportion to the membership of each constituent association as recorded in the office of the Secretary of the American Medical Association on April 1 of the year in which the apportionment is made; provided, that the minimum number of delegates to which each constituent association shall be entitled shall be not less than two. This apportionment shall take effect at the next succeeding annual session and shall prevail until the next triennial apportionment, whether the membership of the constituent association shall increase or decrease.

Resolutions on Maternal and Infant Care for Wives and Infants of Enlisted Men

Dr. Arthur R. McComas, Missouri, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

agreement between the enlisted man and the enlisted man's wife and the physician of her choice; and be it further

Resolved, That the American Medical Association be urged to present to the appropriate committees of Congress a concrete plan embodying this principle, to the end that the present and ultimate best interests of the wives and infants of men in service be served during the present emergency; and be it further

Resolved, That the members of the Missouri State Medical Association will render medical service to the wives and children of enlisted men in the four lower grades for the period of the war emergency regardless of the final decision by Congress or the Children's Bureau as to the method of payment.

Resolutions on Tuberculosis Control

Dr. Arthur R. McComas, Missouri, presented the following resolutions, which were referred to the Reference Committee on Registration and Public Relations:

WHEREAS, It appears that the problem of tuberculosis control is one that is increased in time of war; and

WHEREAS, Tuberculosis is no respecter of geographic boundaries; and

WHEREAS, The problem of supervision and care of the migratory tuberculous patient is becoming more acute, owing to the movement of populations at the present time and may be anticipated to be even greater in the period of industrial conversion; and

WHEREAS, The returned tuberculous veteran of the armed forces is anticipated as an additional burden to the control machinery; and

WHEREAS, Existing public and private health machinery is already overtaxed; and

WHEREAS, A method of implementation of the Tuberculosis Control Section of the United States Public Health Service has been made in the form of proposed congressional action and appropriation approved by the National Tuberculosis Association; and

WHEREAS, The state and territorial health officers have approved the proposition; and

WHEREAS, The Tuberculosis Committee of the Missouri State Medical Association has approved this legislation; be it therefore

Resolved, That the house of delegates of the Missouri State Medical Association shall approve this resolution and shall instruct its delegates to the American Medical Association to request that body also to approve and recommend the passage of S. 1851 and H. R. 4615 and urge the Congress of the United States to enact these bills into law; and be it further

Resolved, That the representatives and the senators of the state of Missouri be informed of this approval and be urged to vote favorably.

Resolutions on Changing the Structure and Enlarging the Field of Activities of the American Medical Association

Dr. T. K. Gruber, Michigan, presented by title resolutions, which were referred to the Reference Committee on Executive Session.

Proposed Amendments to By-Laws, Chapter XII, Sections 2 and 3

Dr. C. B. Conklin, District of Columbia, presented the following proposed amendments to the By-Laws, chapter XII, sections 2 and 3, which were referred to the Reference Committee on Amendments to the Constitution and By-Laws:

Section 2 of chapter XII of the By-Laws of the American Medical Association is hereby amended by the addition thereto of the following proviso:

Provided further, however, that an associate member of the Medical Society of the District of Columbia, who is otherwise qualified under the By-Laws of the American Medical Association, and who on the prescribed form shall apply for Fellowship and subscribe to THE JOURNAL, paying the annual Fellowship dues for the current year, shall be inducted into the Association as a Fellow unless the application is disapproved by the Judicial Council.

Section 3 of chapter XII of the By-Laws of the American Medical Association is hereby amended by the addition thereto of the following proviso:

Provided, further, however, that associate membership in the Medical Society of the District of Columbia shall constitute membership within the meaning of this section.

Proposed Amendments to the Constitution and By-Laws Referring to Fellowship for Medical Officers of Veterans Facilities

Dr. A. W. Adson, Minnesota, presented for the Council on Medical Service and Public Relations the following proposed amendments to the Constitution and By-Laws, which were referred to the Reference Committee on Amendments to the Constitution and By-Laws:

WHEREAS, Medical officers of the Veterans Facilities have lost their membership in county and state medical associations because of reassignments in states in which they hold no medical licensure and thus are unable to transfer membership; and

WHEREAS, Other medical officers of the Veterans Facilities lost their membership in county and state associations through transfers and without maintaining their original county and state society membership; and

WHEREAS, A loss of membership in county and state medical associations automatically deprives medical officers of the Veterans Facilities of membership and Fellowship in the American Medical Association; and

WHEREAS, Many of the medical officers of the Veterans Facilities who have been members of county and state medical societies but have lost their membership through transfers of location desire to be affiliated with the American Medical Association as medical officers of the Army, Navy and the Public Health Service are permitted to do; therefore be it

Resolved, That chapter XII, section 2, of the By-Laws on Membership and Fellowship be amended by the addition of paragraph 3.

"Medical officers of the Veterans Facilities of the United States may be elected to Fellowship in the American Medical Association by application and certification that they were members in good standing in their county medical society at the time of their reassignment within the Veterans Facility and on approval of the Judicial Council of the American Medical Association. Their Fellowship shall be continued as provided under paragraph 2 of chapter XII, section 2"; be it further

Resolved, That the Constitution of the American Medical Association be amended as follows:

Add to article 5, section 2—House of Delegates, Composition, the words "and Veterans Facility," following the words "Public Health Service," and add the words "and Medical Director of Veterans Facility," following the words "respective department."

Amend article 5, section 3, to read "176" instead of "175," and add the words "Medical Veterans Facility" following the words "Public Health Service."

Resolution on Inauguration and Expansion of Voluntary Group Medical Service Plans

Dr. H. A. Luce, Michigan, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, Social change after the present war must be anticipated; and

WHEREAS, Proposals to effect sweeping changes in medical practice in this country are now being advocated by persons in politics and government and by lay groups; and

WHEREAS, Leadership in matters affecting medicine should be assumed by the medical profession, which is best qualified by training and experience to understand these important matters; and

WHEREAS, Voluntary group medical care plans have had successful experiences in several states for a number of years and are preferred by both the people and the medical profession to compulsory government controlled and operated medical service; therefore be it

Resolved, That the American Medical Association effect leadership in encouraging and aiding state medical societies immediately to inaugurate voluntary prepayment medical service plans, or to expand as rapidly as possible existing programs, in order to fit community needs, to bring service to all the people, and to prevent waste and confusion in medical practice which will result from a government operated compulsory system.

Resolutions on Creation of Board of General Practice

Dr. H. A. Luce, Michigan, presented the following resolutions, which were referred to the Reference Committee on Medical Education:

WHEREAS, A large part of the membership of the American Medical Association is engaged in the general practice of medicine, and the members are members of the Sessions for the General Practitioner in the Section on Miscellaneous Topics heretofore constituted to encourage and further the study and elevation of the standards of general practice; and

WHEREAS, By reason of present circumstances and conditions, many physicians have entered the armed forces without opportunity or facility to supplement and advance their professional education by preceptorship, residencies and otherwise; and

WHEREAS, Means and facilities by refresher courses and seminars and otherwise should be made available to all general practitioners to refresh, advance and improve their capacity and proficiency in the practice of medicine; and

WHEREAS, Standards and requirements for membership in the general practice sessions and norms for hospital staff admission should be prescribed and established; and

WHEREAS, A board of general practice for the regulation, control, supervision and gradation of membership in the general practice sessions should be constituted; be it

Resolution on Creation of Department of Public Health

Dr. Dwight L. Wilbur, California, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, The health and vigor of its people is the greatest asset of any nation; and

WHEREAS, Those agencies of our federal government that are concerned with the prevention of disease and the instruction of the people in matters of health and hygiene are now divided and scattered throughout several departments of the government without proper coordination of effort; and

WHEREAS, Unification of all governmental effort in the field of public health under a single head, with cabinet rank, would result in greater efficiency and in increased benefit to the American people; be it

Resolved, That the House of Delegates of the American Medical Association requests the Congress of the United States to create a Department of Public Health, the head of which department shall be a cabinet officer, and to assign to such department all health activities of the federal government.

Resolution Approving Transfer of Children's Bureau of Department of Labor to the United States Public Health Service

Dr. Dwight L. Wilbur, California, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

Resolved, That the House of Delegates of the American Medical Association fully approves and endorses bill H. R. 4663, recently introduced in the House of Representatives of the United States by Congressman Miller of Nebraska, under the terms of which the functions of the Children's Bureau of the Department of Labor are transferred to the United States Public Health Service.

Resolutions on Survey of Public Opinion

Dr. Dwight L. Wilbur, California, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, A suitable and proper survey of public opinion regarding the attitude toward organized medicine, medical care and proposed medical legislation would be of inestimable value in determining the policies and activities of the medical profession toward these problems; and

WHEREAS, The Council on Medical Service and Public Relations, which was established by this House of Delegates in 1943, has indicated that among its policies is the desirability of widespread distribution of the benefits of medical science and the encouragement of the evolution in the methods of administering medical care; be it

Resolved, That a contract for a suitable and proper survey of public opinion regarding its attitude toward organized medicine, medical care and proposed medical legislation be undertaken by the Council on Medical Service and Public Relations; and be it further

Resolved, That an analysis of such information obtained by a qualified corps of experts outside of the American Medical Association be made; and be it further

Resolved, That the information and instruction obtained through such surveys and analyses be properly used by the Council on Medical Service and Public Relations and be not discarded, with the end in view of molding public opinion into its proper form.

Resolution on United Public Health League

Dr. Dwight L. Wilbur, California, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, There is a growing insistent demand from physicians throughout the entire United States for an active, practical representation in Washington, D. C., to present to members of Congress and government departments the views of practicing physicians on pending public health and medical legislation and in turn to relay to physicians pertinent information from our national capital; and

WHEREAS, The action of the Council on Medical Service and Public Relations of the American Medical Association in establishing in Washington an office of "Medical Economic Research" is laudable but has not as yet met the practical political demands in present day Washington; and

WHEREAS, The United Public Health League has established an effective bureau in Washington on behalf of practicing physicians; and

WHEREAS, The membership of the United Public Health League is composed of members of the American Medical Association, and the United Public Health League is in reality a federation of state medical associations united for common effort in the economic and political fields, not infringing on the splendid scientific work of the American Medical Association nor acting contrary to its policies; now therefore be it

Resolved, That the House of Delegates of the American Medical Association endorses the United Public Health League as a vehicle for meeting the demands of the rank and file membership of the American Medical Association in the economic and political fields.

Resolution on Emergency Maternal and Infant Care

Dr. Dwight L. Wilbur, California, presented by title only, since the matter is covered in another resolution, a resolution

dealing with Emergency Maternal and Infant Care, which was referred to the Reference Committee on Legislation and Public Relations.

Resolution on Secretary of American Medical Association

Dr. Dwight L. Wilbur, California, presented by title a resolution dealing with Secretary of the American Medical Association, which was referred to the Reference Committee on Executive Session.

Resolution on Editor of the Journal of the American Medical Association

Dr. Dwight L. Wilbur, California, presented by title a resolution dealing with the Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, which was referred to the Reference Committee on Executive Session.

Resolution on Dr. Horace Wells of Hartford, Conn.

Dr. James R. Miller, Connecticut, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, 1944 marks the centenary of the discovery by Horace Wells of Hartford, Conn., of a practical method of anesthesia by nitrous oxide; and

WHEREAS, The American Medical Association in session in Washington in May 1870 passed the following resolution: "Resolved, That the honor of the discovery of practical anesthesia is due to the late Dr. Horace Wells of Connecticut"; be it therefore

Resolved, That the House of Delegates of the American Medical Association commends and endorses the celebration during 1944 of the centenary of the discovery by Dr. Horace Wells of Hartford, Conn., of a practical method for human anesthesia during surgical operations.

Motion on Wagner-Murray-Dingell Bill

Dr. J. W. Irwin, Montana, presented the following motion of the Silver Bow (Montana) Medical Society, which was referred to the Reference Committee on Legislation and Public Relations:

At a regular meeting of the Silver Bow County Medical Society held April 26, 1944 the following motion was made, seconded and carried:

Moved, That the Silver Bow County Medical Society recommends that the delegates of the Medical Association of Montana to the House of Delegates of the American Medical Association work for and endeavor to have the American Medical Association take control, not only in scientific leadership, but also in national political questions, including lobbying against the Wagner-Murray-Dingell bill, either directly through its officers or by arrangement with the National Physicians Committee for the Extension Medical Service, or Association of American Physicians and Surgeons of Lake County, Indiana, and take all steps necessary to enable such a program to be carried out.

Resolution on Political and Economic Interests of Physicians

Dr. J. W. Irwin, Montana, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, The health of the American people is jeopardized by the critical situation in which the medical profession now finds itself; now, therefore, be it

Resolved, That the delegate of the Medical Association of Montana to the House of Delegates of the American Medical Association be instructed to urge that some organization be chosen to represent the political and economic interests of the physicians of America before the Congress of the United States and people of America. It is felt that such an organization should be supplementary to the American Medical Association rather than an entirely independent and, perhaps, rival organization.

Resolution Opposing Training of Nonmedical Personnel in Audiometry

Dr. G. Henry Mundt, Illinois, presented the following resolution, which was referred to the Reference Committee on Medical Education:

WHEREAS, There is an effort being made to establish courses in audiometry for nonmedical personnel; and

WHEREAS, There is no bona fide reason for the establishment of these courses, thus producing another group of quasi-medical personnel; be it

Resolved, That the American Medical Association is opposed to the training of nonmedical personnel in audiometry.

Resolutions on Council on Medical Service and Public Relations

Dr. James R. Miller, Connecticut, presented by title resolutions dealing with the Council on Medical Service and Public Relations, which were referred to the Reference Committee on Executive Session.

Resolution on Shortage of Trained Nurses

Dr. S. E. Gavin, Wisconsin, presented the following resolution, which was referred to the Reference Committee on Medical Education:

This resolution calls attention to the shortage of trained nurses and to the fact that in many communities it is felt that training requirements are too high for ordinary needs, this, in part, accounting for current difficulties.

It is pointed out that states themselves cannot successfully change their laws without similar action in other states, because of reciprocity arrangements for licensure. It suggests that the whole subject is worthy of consideration by the Council on Medical Education and Hospitals.

WHEREAS, For many years there has been a continuous and meritorious effort to elevate the requirements for nursing licensure in the several states, which, however, being directed toward the establishment of a qualified and recognized field of nursing, provided with such standards as to assure the maximum protection of public health, have resulted inevitably in decreasing the number of potential enrollees in the various nursing schools; and

WHEREAS, This condition has developed to such an extent during the artificial conditions resulting from the war effort that the United States government has found it necessary to provide a method of stimulating enrolment in nursing schools through establishment of the United States Cadet Nurse Corps; and

WHEREAS, These efforts in the field of nursing education are frequently asserted to be carried to an impractical extreme, thus giving rise to the condition with which the country is now faced; and

WHEREAS, There remains a current shortage of nurses and, because of the reciprocal arrangements between states, an inability exists on the part of the individual states, as such, to make changes in their laws as would facilitate the enrolment and graduation of trained nurses; and

WHEREAS, It is proper, logical and consistent that the American Medical Association should encourage the initiation of studies of the licensure of those proposing to engage in ancillary fields to the practice of medicine and surgery; now, therefore, be it

Resolved, That the House of Delegates of the American Medical Association request the Council on Medical Education and Hospitals to engage in a cooperative study of the nursing education requirements of the

several states, the problem as it exists both prior to and since the war emergency, and in cooperation with the several associations concerned to suggest such changes for endorsement by national organizations as may seem consistent with good public health protection and so designed as to increase the availability of nurses throughout the country.

Resolution on Reapportionment of Delegates

Dr. E. N. Roberts, Idaho, submitted the following resolution, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws:

Be it Resolved, By the House of Delegates of the Idaho State Medical Association in session May 22, 1944, that we petition the House of Delegates of the American Medical Association to amend the Constitution and By-Laws so that the minimum number of delegates to which each state is entitled shall be two instead of one.

Resolution to Transfer Bureau of Emergency Maternal and Infant Care Program to Department of Public Health

Dr. E. N. Roberts, Idaho, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

Be it Resolved, By the House of Delegates of the Idaho State Medical Association in session May 22, 1944, that we recommend the transfer of the Bureau of Emergency Maternal and Infant Care Program from the Department of Labor to the Department of Public Health and ask that the American Medical Association actively foster such action by all means within its power.

Resolution on Washington Office

Dr. E. N. Roberts, Idaho, presented without reading a resolution on a Washington Office, which was referred to the Reference Committee on Executive Session.

On motion, duly made, seconded and carried, the House recessed at 2:50 p. m. to meet at 9:30 a. m. Tuesday, June 13, 1944.

(To be continued)

MEDICAL LEGISLATION**MEDICAL BILLS IN CONGRESS**

Changes in Status.—H. R. 4615 has been ordered favorably reported by the House Committee on Interstate and Foreign Commerce, a bill to establish, for the investigation and control of tuberculosis, a division in the United States Public Health Service. H. R. 4899 has passed the Senate, making appropriations for the Department of Labor, the Federal Security Agency and related independent agencies for the fiscal year ending June 30, 1945. As passed by the Senate, this bill appropriates the sum of \$42,800,000 for grants to states to provide obstetric and pediatric care to the wives and infants of servicemen, including those of army aviation cadets. Not more than 3 per cent of the sum appropriated may be allotted to the states for administrative expenses. The bill effects no change in the manner in which this program has been carried out in the past. H. R. 4967 has passed the House, making appropriations for the Military Establishment for the fiscal year ending June 30, 1945. The bill provides that no appropriation contained in it "shall be available for any expense incident to educating persons in medicine (including veterinary) or dentistry if any expense on account of their education in such subjects was not being defrayed out of appropriations for the Military Establishment for the fiscal year 1944 prior to June 7, 1944."

Bills Introduced.—S. 1989, introduced by Senator Barkley, Kentucky, provides for water pollution control activities in the United States Public Health Service. H. R. 5021 and H. R. 5022, introduced by Delegate Diamond, Alaska, propose to establish a veterans' hospital, respectively, in central Alaska and southeastern Alaska. H. R. 5027, introduced by Representative Miller, Missouri, proposes to amend the Selective Training and Service Act so as to provide that there shall be deferred from training and service in the land and naval forces of the United States, as necessary to the maintenance of the national health, safety and interest, in each calendar year not less than six thousand medical students. The term "medical student" is defined by the bill to mean (1) a person who is enrolled in,

and who is pursuing a course of instruction prescribed for the degree of doctor of medicine at an accredited medical college; or (2) a person who is pursuing a regular course of instruction at an accredited college or university (satisfactory completion of which will make such person eligible for enrolment in an accredited medical college) with the bona fide intention of entering an accredited medical college and pursuing and completing the course of instruction prescribed for the degree of doctor of medicine.

OFFICIAL NOTES**DOCTORS AT WAR**

Radio broadcasts of Doctors at War by the American Medical Association in cooperation with the National Broadcasting Company and the Medical Departments of the United States Army and the United States Navy has been on the air each Saturday (3:30 Central war time, 2:30 Mountain war time and 1:30 Pacific war time).

The title for the final program, June 24, is "Serving all Services."

Honor Citations and Service Melodies

Owing to the uncertain state of communications consequent on fast shifting military fronts, it has been impossible to arrange the Doctors at War broadcast scheduled for July 1, on which it was planned to present Army and Navy medical officers by short wave from actual war theaters. Doctors at War, therefore, will close with the broadcast of June 24. This will be a special broadcast emphasizing the services of doctors to all branches of the armed forces. It will include military music by the N. B. C. orchestra, a male chorus and a contralto soloist. The program and the series will close with a radio "taps" ceremony honoring physicians who have given their lives in the service of the men and women of our armed forces.

Medical News

(PHYSICIANS WILL CONTRIBUTE A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

Narcotic Violation.—On May 10 Dr. James Ellis Cox, Rosston, was convicted in the U. S. District Court of Texarkana of a violation of the federal narcotic law. Dr. Cox was sentenced to imprisonment for a term of eighteen months.

Proposed Hollingsworth State Hospital System.—A state controlled hospital program calling for an investment of about \$15,000,000 in five general hospitals, seventy clinics and emergency hospitals and a research laboratory and involving several new taxes on natural resources may go to decision of the voters in the general election November 7, according to the *New York Times*, May 28. Walter Hollingsworth of Little Rock, a former actuary in the Arkansas Insurance Department and author of the proposed initiated act which would set up the "Hollingsworth State Hospital System," is reported to have said that he and volunteer associates have begun to circulate petitions to place the measure on the ballot. In advancing the proposal, which he has worked on for more than a year, he cited the low place Arkansas holds in hospitalization, saying that the state has only twenty-five hospitals holding any rating from the American Medical Association and the American College of Surgeons. These hospitals have 1,860 beds. Although 4.5 beds per thousand of population is the minimum recommended by the American Hospital Association, the federal census of 1940 showed that Arkansas had only 2.15 beds per thousand of population in hospitals of all kinds, including mental institutions. Only Kentucky, with 1.98 beds, and Mississippi with 1.57, ranked lower than Arkansas. Mr. Hollingsworth declares, it was stated, that the state needs 9,000 beds for its population of nearly 2,000,000. His measure would provide 3,000 additional beds. The measure proposes to furnish hospitalization to all citizens for the "balance of cost" of hospitalization. The three member commission which would administer the program would calculate the cost to a patient by applying against his bill a proportion of the operating revenues received from taxes. Free service would be furnished, however, to those found by the commission to be charity patients. The program provides for those asking it a medical and clinical examination at the cost of materials used, but not to exceed \$1.50. Physicians would charge their own fees for pay patients but would be required to furnish free service to charity patients. The first item on the hospital program, which would become effective Feb. 15, 1945, would be building and equipping of a research laboratory and administration building in Little Rock at a cost of not less than \$500,000 nor more than \$600,000. The commission would build five general hospitals in major cities, each at a cost of not less than \$500,000 nor more than \$2,500,000. Each hospital would have a nurses' school. Where one of the general hospitals is put into operation the commission would begin building an emergency hospital and clinic in each of the seventy counties not served by a general hospital. The aggregate cost of the seventy clinics and emergency hospitals could not exceed 10 per cent of the gross revenue for the first five years. The act would appropriate \$5,000,000 for each of the fiscal years beginning next February 15 and Feb. 15, 1946. Of the appropriations \$3,500,000 would be for capital expenditures, \$900,000 for general operating expenses, \$500,000 for salaries and \$100,000 for research. The three commissioners would be appointed to seven year terms by the governor with the consent of the senate. They would receive \$5,000 a year. A general auditor and general purchasing agent would receive \$5,000 a year and a secretary-treasurer \$4,200. The commission would fix the duties and the salary of all other employees. The entire project would be financed by new taxes on natural resources.

CALIFORNIA

State Medical Election.—Capt. Philip K. Gilman (MC) was chosen president-elect of the California Medical Association at its recent annual meeting and Dr. Lowell S. Goin, Los Angeles, was installed as president. Dr. George H. Kress, San Francisco, is secretary editor.

Personal.—The Ecuadorian government has granted its decoration "Al Merito" to Dr. Jacob C. Geiger, director of public health of the city and county of San Francisco, for

"distinguished service, for noteworthy and indomitable leadership in the advancement of public health in the Americas."

Course in Eye, Ear and Throat.—The Research Study Club of Los Angeles announces that its fourteenth annual midwinter course in ophthalmology and otolaryngology will be held Jan. 22 to Feb. 2, 1945. A special course in applied anatomy and cadaver surgery of the head and neck will be held February 2-6. Additional information may be obtained from Dr. Pierre P. Violé, 1930 Wilshire Boulevard, Los Angeles 5.

CONNECTICUT

State Medical Election.—Dr. Joseph H. Howard, Bridgeport, was chosen president-elect of the Connecticut State Medical Society, at its recent annual meeting and Dr. H. Gildersleeve Jarvis, Hartford, was installed as president. Drs. Maurice T. Root, West Hartford, and Edmund L. Douglass, Groton, are vice presidents. Dr. Creighton Barker, New Haven, is executive secretary, and Dr. Hugh B. Campbell, Norwich, treasurer.

Personal.—A public celebration was held in Rocky Hill, April 21, to honor the forty years of service of Dr. Oran A. Moser to the community. A gold watch and chain, the gift of his "babies," was presented to the physician by his "first baby." Dr. Thomas H. Denne, president of the Hartford Medical Society, paid special tribute to Dr. Moser on behalf of the society.—Dr. Hugh B. Campbell, Norwich, has resigned as superintendent of the Uncas-On-Thames State Tuberculosis Sanatorium to become medical director of the Phoenix Life Insurance Company of Hartford. He will be succeeded by Dr. William H. Weidman. Dr. Campbell is treasurer of the state medical association and at one time served as president.

DISTRICT OF COLUMBIA

Another Death from Spotted Fever.—The second fatality from Rocky Mountain spotted fever in Washington in eleven days was reported May 28. A woman of Vienna, Va., died May 27. The first death to be reported was that of Major Alexander R. Moir of the Royal Air Force Transport Command, who died May 16 (*THE JOURNAL*, June 3, p. 367).

Theodore Wiprud Named Professor at Georgetown.—Mr. Theodore Wiprud, executive secretary of the Medical Society of the District of Columbia, Washington, has been appointed professor of medical socioeconomics at Georgetown University School of Medicine. He will succeed Dr. Arthur C. Christie, who has been on the faculty of Georgetown for many years as special lecturer in medical economics. Dr. Christie will retain his position as professor of clinical radiology.

Blood Bank for Civilians.—On May 10 District commissioners ordered the creation of a District community blood bank to meet emergency civilian needs at minimum cost. Plasma will be distributed from the Office of Civilian Defense Blood Bank, which now has 2,000 units on hand, 1,500 units stored at ten Washington hospitals and 500 additional units in reserve storage at the George Washington University School of Medicine. The OCD bank has been financed by the Washington Central Labor Union since Pearl Harbor as a means of guaranteeing adequate blood supplies in the event of air raids or similar emergency. The reorganized blood bank will be directed by a six man governing board, whose members, named by the commissioners, are Dr. Charles Stanley White, representing surgeons of the district; Dr. John A. Reed, representing internists; Dr. John M. Orem of the Washington Association of Hospitals; Dr. Oscar B. Hunter of the Medical Society of the District of Columbia, and Dr. Roger M. Choisser, representing pathologists. The lay member of the committee, who will represent the union as sponsor and underwriter of the blood bank, has not yet been named.

ILLINOIS

Penicillin Gift to Peoria Hospitals.—Dr. and Mrs. George W. Michell, Peoria, have contributed funds to provide 22,200,000 units of penicillin to Peoria hospitals for persons unable to afford its use. Dr. Michell is medical director of two Michell sanatoriums in Peoria for mental and nervous conditions. The gift is in honor of Horace T. Herrick, Chem.E., director, North Regional Research Laboratory of the U. S. Department of Agriculture, and Robert D. Coghill, Ph.D., chief of fermentation division at the laboratory and coordinator of penicillin production in the United States. The gift has been made available to the John C. Proctor Hospital, Methodist Hospital of Central Illinois and the St. Francis

Hospital. Dr. Michell has stipulated that the case use of penicillin shall be determined by the staffs of each hospital in order that the drug may be given only in proper cases. The Michell gift will not be made available in gonococcal infections, since the state provides the drug for this disease.

Chicago

Memorial to Dr. Gifford.—The August issue of the *Quarterly Bulletin* of Northwestern University Medical School will be a memorial number to the late Dr. Sanford R. Gifford, who at the time of his death, February 25, was professor and chairman of the department of ophthalmology at the medical school.

Course in Otolaryngology.—The University of Illinois College of Medicine will hold its annual fall didactic and refresher course for specialists in otolaryngology, September 25-30. Registration is limited to 25. Applications should be addressed to the Department of Otolaryngology, University of Illinois College of Medicine, 1853 West Polk Street, Chicago 12.

Frederic Gibbs Joins Illinois Faculty.—Dr. Frederic A. Gibbs, instructor in neurology at Harvard Medical School, Boston, has been appointed associate professor of psychiatry at the University of Illinois College of Medicine, effective September 1; he will have a similar appointment in the Illinois Neuropsychiatric Institute. Mrs. Gibbs has been appointed research assistant at the medical school.

Grant for Study on Renal Hypertension.—The John and Mary R. Markle Foundation has authorized a grant in aid of \$5,400 annually for a two year period in support of research on experimental renal hypertension at the University of Illinois College of Medicine. The research work, which was initiated in 1942 under a two year grant of \$7,000 from the foundation, is under the direction of Dr. George E. Wakerlin, professor and head of the department of physiology at the school.

Dr. Carlson Receives Friedenwald Medal.—Dr. Anton J. Carlson, emeritus professor of physiology at the University of Chicago School of Medicine, received the annual Friedenwald Medal of the American Gastroenterological Association during its annual banquet at the Drake Hotel, June 12. The presentation was made by Dr. Andrew C. Ivy. Speakers at the dinner included Hon. Joseph P. Kennedy, former ambassador of the United States to the Court of St. James's, on "Some Aspects of Today's Financial Situation."

KANSAS

Narcotic Violation.—Dr. Walter P. Stoltenberg, Kinsley, recently pleaded guilty in the U. S. District Court in Topeka to a violation of the United States narcotic laws. He was fined \$500 and placed on probation for ten years.

New Director of Maternal and Child Health Division.—Clara R. Johns, assistant surgeon, U. S. Public Health Service, has been assigned as acting director of the division of maternal and child health of the Kansas State Board of Health.

LOUISIANA

Million Dollar Bequest to Hospital.—The will of the late Mrs. Marie Celeste Stauffer Eastwick carries a bequest which will amount to more than a million dollars for the Eye, Ear, Nose and Throat Hospital, New Orleans, according to the Orleans Parish Medical Society *Bulletin*. Mrs. Eastwick was the sister of Mr. Walter Stauffer, who was for many years president of the hospital. The will provides for the construction of an eye hospital on the ground adjoining the present building. The bequest also provides the means for research.

Health Committee Named.—The Orleans Parish Medical Society and the Association of Commerce have established a joint community health committee with Dr. Edwin L. J. Zander, president of the society, and Mr. Azzo J. Plough as co-chairman. The Orleans Parish Medical Society *Bulletin* states that the purpose of the new committee is to insure a closer cooperation between the medical profession and business in civic and industrial matters affecting community health. Members of the committee from the Orleans Parish Medical Society are, in addition to Dr. Zander, Drs. Andrew V. Friedrichs, Henry B. Alsobrook, Edmund L. Leckert and Daniel J. Murphy. The members from the Association of Commerce, in addition to Mr. Plough, are Leonard V. Huber, Joseph Dresner, Henry Walther and George Soule. All members are of New Orleans.

MISSOURI

Muench Granted Right to Take Examination.—At a meeting of the state board of health in Kansas City, April 24, Dr. Ludwig O. Muench, formerly of St. Louis, was granted permission to take the board's examination for a new license to practice medicine. In an opinion Nov. 30, 1943, Attorney General Roy McKittrick informed the state board of health that it did not have the authority to consider the application of Dr. Muench for restoration of his medical license but that it might pass on an application for an examination and issuance of a new license. Dr. Muench was released June 6, 1943 from the federal prison in Terre Haute, Ind., having served six years on a conviction of using the mails to defraud (*THE JOURNAL*, July 31, 1943, p. 959; January 8, p. 114). The license of Dr. Muench had been revoked in 1937 for unprofessional and dishonorable conduct.

NEW YORK

Dr. Charlton Receives Ewing Award.—On May 16 the Westchester County Medical Society presented to Dr. Herbert R. Charlton, Bronxville, the second James Ewing Award "as a token of recognition and commendation for distinguished service to the people and to the medical profession of Westchester County contributing to the understanding and control of malignant disease." Dr. Charlton is chairman of the cancer committee for Westchester County.

Million Dollars to Hospital.—The New Rochelle Hospital, New Rochelle, has been left half of an estate valued at more than two million dollars by the late Norman L. Noteman. Mr. Noteman's will directed that the First National Bank of New Rochelle, as trustee, establish the "Noteman Memorial Fund," the income to be used for the general purposes of the hospital, and empowered the trustee to draw on the principal for the construction of new buildings and other capital improvements.

Hospital Benefits Under Lieutenant's Will.—The new Lester N. Hofheimer Memorial operating room is under construction at Ossining Hospital, Ossining. The room was made possible by a \$10,000 bequest to the hospital under the will of the late Lieutenant Hofheimer, who was killed in action in December. Lieutenant Hofheimer left the bulk of his estate, approximating \$1,000,000, to philanthropic enterprises. After the death of certain beneficiaries in the will, a trust fund of \$100,000 will revert to Mount Sinai Hospital, New York, and Hillside Hospital, Bellerose. The remainder of his estate is to be distributed among "religious, charitable, scientific or educational" institutions. The distribution of the estate is left to the discretion of three executors. On May 24 the only sum allocated was the \$10,000 to Ossining Hospital.

Anatomist Dies.—Conrad E. Tharaldsen, Ph.D., professor and director of the William Waldo Blackman department of anatomy and chairman of the committee on graduate education at the New York Medical College Flower and Fifth Avenue Hospitals, New York, died in Crestwood, May 20. Dr. Tharaldsen received the degree of bachelor of science from St. Olaf College, Northfield, Minn., in 1907 and his degree of doctor of philosophy at Columbia in 1925. He later served as head of the biology department of the state normal school in Mayville, N. D., associate professor of zoology and acting director of the department, Northwestern University, becoming in 1927 professor of anatomy and head of the department at New York Medical College, then known as the New York Homeopathic Medical College and Flower Hospital. It was stated that at the time of his death Dr. Tharaldsen was preparing for publication an atlas of human anatomy on which he had been working for ten years.

Society Begins Summer Radio Programs.—Child health will be the theme of a series of radio broadcasts to begin July 1 under the auspices of the Medical Society of the County of Monroe. The talks will be broadcast over station WHAM, with Dr. Morris Fishbein, Editor of *THE JOURNAL*, opening the series with a discussion on "The Child as Key to Destiny and Future of America." Remaining lectures in the series will include:

- Dr. John Aikman, Rochester, July 15, Accident Prevention.
- Dr. Paul A. Lembcke, Rochester, July 22, The Child Hygiene Program of the New York State Department of Health, including EMIC Service.
- Dr. Exie E. Welsch, Rochester, August 5, Mental Health of Child—dramatic presentation.
- Dr. William L. Bradford, Rochester, August 12, Important Diseases Prevalent in Summer to Which Children Are Especially Susceptible—Poliomyelitis.
- Dr. Jerome Glaser, Rochester, August 19, Forms of Allergy in Children and Infants.
- Dr. John Merrell Parker, Rochester, August 26, Modern Aspects of Nutrition of Infant and Child.

OHIO

Dr. Tallman Named Commissioner of Mental Diseases.—Dr. Frank F. Tallman, Lansing, for more than two years director of mental hygiene in the state of Michigan, has been appointed commissioner of mental diseases in the Ohio State Department of Public Welfare, Columbus. There are fifteen hospitals for the mentally ill, feeble-minded and epileptic in the division of mental diseases which Dr. Tallman will supervise, with a population of about 27,000 patients. In addition to his work with the hospitals, Dr. Tallman will be responsible for a receiving hospital program and a statewide program of mental hygiene.

Horsley Prize Awarded to Cincinnati Physician.—Major William B. Bean, M. C., on leave of absence as assistant professor of medicine at the University of Cincinnati College of Medicine, has been awarded the John Horsley Memorial Prize in Medicine in the amount of \$600 for a paper on "Secondary Pellagra" prepared by Major Bean, Dr. Tom D. Spies and Dr. Marion A. Blankenhorn, Cincinnati. The prize was established in 1925 by Dr. J. Shelton Horsley, Richmond, Va., as a memorial to his father, Mr. John Horsley of Nelson County, Va., and was presented at the annual initiation ceremonies of the University of Virginia Chapter of Sigma Xi, May 11. The prize is open to all graduates of the department of medicine of the University of Virginia, Charlottesville, of not more than fifteen years' standing and to former interns of St. Elizabeth's Hospital in Richmond under the same conditions.

WEST VIRGINIA

Dr. Chipman Resigns from State Department.—Dr. Lenore V. L. Patrick-Chipman has resigned as director of the division of maternal and child hygiene in the West Virginia Department of Health to resume private practice at Williamstown, Ky.

Changes in Health Officers.—Dr. Walter J. Riley, formerly of Sutton, has been named health officer of district number 4 at Weston to succeed Dr. Claude A. Thomas. The latter has been named to a similar position in district number 5 with headquarters at Romney.

Deputy State Health Commissioner Appointed.—Albert L. Chapman, A. Surg., U. S. Public Health Service, has been assigned to the West Virginia Department of Health, Charleston, to serve as deputy state health commissioner. This arrangement was made pending the selection of a physician for the office under the merit system. The appointment of a deputy commissioner has been approved by the public health council of West Virginia, and certain administrative duties were to be assigned to him by Dr. John E. Offner, Weston, state health commissioner, when he assumed his new duties on June 15. The deputy will be in full charge of the office during the absence of the state health commissioner, who is frequently called on to attend public health conferences.

GENERAL

Remington Award Goes to Dr. Kendig.—The New York Branch of the American Pharmaceutical Association has awarded the 1944 Remington honor medal to Dr. Harvey Evert Kendig, dean of Temple University School of Pharmacy, Philadelphia, it was announced on May 24. Dr. Kendig is named for the award for his work leading to the establishment of a pharmacy corps in the U. S. Army. Dr. Kendig graduated at the Medico-Chirurgical College of Philadelphia in 1905. He has been dean of the Temple school of pharmacy since 1932 and in 1940-1941 was president of the American Association of Colleges of Pharmacy.

Banting Medals Presented.—This year for the first time at its fourth annual meeting in Chicago, June 11, the American Diabetes Association awarded the Banting Memorial Medals to all ex-presidents and to all Banting lecturers of the association. The medal was created to memorialize Dr. Frederick Banting, who at the time of his death was honorary president of the American Diabetes Association. Two medals will be awarded each year, one to the outgoing president and one to the lecturer. Presidents who have been given medals are Drs. Cecil Striker, Cincinnati, Herman O. Mosenthal, New York, and Joseph T. Beardwood, Philadelphia. Lecturers who have received the award are Drs. Elliott P. Joslin, Boston, first Banting lecturer, Dr. William Muhlberg, Cincinnati, and Col. Leonard G. Rowntree, M. C. Dr. Joseph H. Barach, Pittsburg, was elected president of the association at the recent session. Vice presidents are Drs. Russell M. Wilder, Rochester, Minn., and Edward S. Dillon, Philadelphia. Dr. Striker and Dr. Muhlberg were reelected secretary and treasurer respectively.

Special Society Elections.—Dr. Henry E. Michelson, Minneapolis, was elected president of the Society for Investigative Dermatology at its annual meeting in Chicago, June 13, and Dr. Herman Beerman, Philadelphia, was named vice president. Drs. Samuel W. Becker, Chicago, and Joseph Gardner Hopkins, New York, were reelected secretary and treasurer, respectively. The society will hold its annual meeting in 1945 on the day previous to the opening meeting of the annual session of the American Medical Association.—Dr. Abraham H. Aaron, Buffalo, was chosen president of the American Gastroenterological Association at its annual meeting in the Drake Hotel, Chicago, June 13. Drs. Henry L. Bockus, Philadelphia, and Walter L. Palmer, Chicago, are vice presidents. Dr. John G. Mateer, Detroit, was reelected treasurer and Dr. J. Arnold Barger, Rochester, Minn., secretary. The society will meet in Atlantic City the first Monday and Tuesday in May 1945. This plan is contingent on the dates selected for the annual session of the American Medical Association.—Dr. Ralph G. Carothers, Cincinnati, was chosen president-elect of the American Association for the Surgery of Trauma at its annual meeting in the Edgewater Beach Hotel, Chicago, June 13, and Col. Grover C. Penberthy, M. C., was installed as president. Dr. Casper F. Hegner, Denver, was elected vice president. Drs. Gordon M. Morrison, Boston, and Arthur R. Metz, Chicago, were reelected secretary and treasurer, respectively. Dr. Ellen C. Potter, Trenton, director of medicine, New Jersey State Department of Institutions and Agencies since 1930, on May 27 became president of the National Conference of Social Work.—Dr. Stanley P. Reimann, Philadelphia, was named president-elect of the American Society of Clinical Pathologists at its annual meeting at the Drake Hotel, Chicago, June 9, and Dr. Frank W. Konzelmann, Philadelphia, was inducted into the presidency. Drs. Josiah J. Moore, Chicago, and Alfred S. Giordano, South Bend, Ind., were reelected vice president and secretary-treasurer, respectively. The Ward Burdick medal was presented by the association to Dr. Frank W. Hartman, Detroit, for his work on "Production, Prevention and Treatment of Experimental Liver Necrosis."—Dr. Conrad Berens, New York, was chosen chairman of the Association for Research in Ophthalmology at its annual meeting at the Hotel Sherman, Chicago, June 13. Major Britain F. Payne, M. C., was reelected secretary-treasurer of the association. Dr. Hunter H. Romaine, New York, is the assistant secretary.

LATIN AMERICA

Health Activities in Latin America.—*Hospitals Must Pay Minimum Wage Scale.*—Hospitals and clinics throughout Puerto Rico will have to pay the minimum wage scale established by the minimum wage board on May 18, 1941, according to a recent decision rendered by the Supreme Court of Puerto Rico. The decision followed an appeal from eighteen institutions which contended that they were financially unable to carry out the requirements of the order since a great part of their work is charitable. It was charged that the board has exceeded its powers. The order applies to all workers employed in municipal hospitals, insular sanatoriums and district hospitals.

Drugs in Puerto Rico.—The sulfonamide drugs, far from being a "cure-all" in cases of gonorrhea in Puerto Rico, have effected apparent cures in about 40 per cent of the cases in which they have been used, according to a report June 8. Penicillin has been made available in four island hospitals which have been designated as depots. A maximum of 10 million units will be available for distribution monthly at the discretion of physicians of the staff. The hospitals named as depots are the Presbyterian, University Hospital of the School of Tropical Medicine and the district hospitals of Bayamon and Fajardo.

New Construction.—In a report presented to the West Indian Conference in Barbados under the auspices of the Anglo-American Caribbean Commission (THE JOURNAL, June 10, p. 442) Dr. Antonio Fernos-Isern, San Juan, commissioner of health of Puerto Rico, announces that \$43,000,000 will be spent in the next six years in Puerto Rico on public health and welfare, more than half of which will be expended to include sanitation systems. Five new free general hospitals will be constructed to provide a total of 2,500 beds, which, it is expected, will, with available facilities, raise the proportion of beds to the population to about 4½ beds per thousand inhabitants. The proposed plans call for the construction of four antituberculosis sanatoriums, expansion of the present one and the building of a new mental hospital.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 20, 1944.

Reform of Medical Education

A planning committee of the Royal College of Physicians has found grave defects in the medical curriculum—too much unnecessary detail, which overloads the student, too much emphasis on fact and too little on method. The students themselves fall short of what is desirable. Too many have neither the character nor the ability to make good doctors. This is chiefly due to the small number seeking admission. It is proposed that the field from which medical students are selected should be widened by making university education free and by providing maintenance grants for those who need them. Each university or medical school should have a yearly quota of admissions. Suitability for entry should be judged by academic ability measured by school record and examination, and by character and personality. Selection should be made by a small body elected by the university or medical school.

School education should be continued at least until the age of 18 years, the committee suggests; specialization, whether in arts or in science, should be more limited than at present. Before entry to a university a medical student should produce evidence of having attained a high standard in chemistry, physics and biology. At the university it is recommended that he begin with a course of three terms, planned by teachers of the basic sciences in collaboration with the professors of anatomy and physiology, as an introduction to the study of man.

In the preclinical period of medical studies the committee recommends that the amount of topographic anatomy be considerably reduced, the details required for operative surgery being reserved for postgraduate teaching. A short series of classes on certain aspects of psychology should be introduced. The clinical studies should be linked more closely with the preclinical by attaching some junior preclinical teachers to the clinical departments and vice versa, by using clinical cases to illustrate the principles of anatomy, physiology, biochemistry and pharmacology, and by introducing methods of examining the normal body.

It is also suggested that the clinical period be divided into two parts—an undergraduate period of three years and a graduate period of one year. The former should aim at the teaching of method and principles and the development of judgment rather than the memorizing of facts. The system of clinical clerking and dressing should be retained with the following suggested modifications: 1. There should be an introductory course of at least three months. 2. Teaching should as far as possible be orderly, as opposed to random, and during the several appointments should be more closely coordinated. 3. The student should receive more supervision and encouragement from senior teachers. In the graduate period resident house appointments should be held at recognized hospitals. It would be an advantage for these posts to last four months, so that three of them could be held in the course of a year. Five kinds of positions would provide suitable training—general surgery, general medicine, obstetrics and gynecology, pediatrics and special departments. Each graduate should hold one post in general medicine and one in general surgery, and these should include work in the emergency department of the hospital. The third should be chosen from the remaining posts mentioned according to availability and option. Such posts already are in vogue, but making them compulsory is a great innovation.

These changes also require a reform in the examination system. Two final examinations are considered desirable. The first, at the end of the undergraduate period, should test the student's grasp of method and principle and license him to prac-

tice only in the hospital. The second, at the end of the resident year, should test his practical capability and license him to practice independently. While the first examination would test whether or not the student is fit to undertake the care of hospital patients, the resident appointment would provide experienced superiors readily available whenever he is at a loss. Such an examination need not therefore concentrate on the extent of the student's factual knowledge or seek to find out what he does not know. It should rather seek to discover his acquaintance with the general principles underlying his subjects, his grasp of methods in clinical inquiry and his ability to form a judgment on the facts.

Germany's Chemical Industry and Control of Drugs

Lord Vansittart, speaking in the House of Lords, asked the government whether in view of the paramount necessity of permanently preventing the manufacture of all explosives in Germany after the war they would appoint a committee of scientists to prepare a plan with particular regard to control or elimination of Germany's nitrate and hydrogenation plants. Lord Horder said that, speaking as a doctor, it was clear that the Nazis long and devilish preparation for an all out war included more things than killing human beings by explosives. It included prevention of the cure of human beings who fell sick. For a long time the Nazis deliberately cut to the starvation point the manufacture by other countries of chemical substances vital in the pursuit of medical science and treatment. He referred to two essential drugs. The first was suramin, which the Nazis—surely with their tongue in their cheek, he thought—called "Germanin." They prevented other countries from using it. It was made by Bayer as the result of a secret process and was of great use in the treatment of sleeping sickness. Still more important was the synthetic atabrine, a substitute for quinine and also a Bayer product. Both the constituents and the mode of preparation were kept secret for a long time, and supplies outside Germany were strictly limited. At the outbreak of war, of course, these supplies ceased. We relied on the quinine obtained in large quantities from the Dutch East Indies. When that supply failed we were badly handicapped. A full inquiry should be made by expert chemists into the whole field of synthetic chemical industry in Germany, Lord Horder stated. In conjunction with our allies, some plan should be devised to prevent entirely the manufacture of explosives and the control of essential drugs, he thought.

Replying for the government, Lord Cherwell agreed that if we could prevent Germany from making synthetic nitrates we could prevent her from making war. But nitrogen was the essential element in proteins, and in a modern world we had largely replaced the bacteria in the roots of certain plants capable of fixing nitrogen and putting it back in the soil, by the synthetic fertilizer. The problem was, he said, that if we stopped Germany from making synthetic nitrates or ammonia there would be difficulty in getting fertilizers for central Europe. Every effort would be made to find a way of circumventing this difficulty. The same situation applied to the question of hydrogenation. The government agreed that the time had come to extend the participation of scientists in these questions.

Marriages

EUGENE CHARLES WINKELMANN, Brenham, Texas, to Miss Ann Carolyn Franks in Dallas, March 12.

ROBERT JOSEPH WHIPPLE, McConnellsville, N. Y., to Miss Gwendolyn Hunt of Semora, N. C., May 14.

JAMES L. MUDD, St. Louis, to Miss Vivie Boevingloh of Germantown, Ill., May 3.

LOUIS L. SHERMAN to Miss Audrey Moe, both of Detroit, April 30.

Deaths

Henry Edwards Palmer, Tallahassee, Fla.; University of Maryland School of Medicine, Baltimore, 1892; member and past president of the Florida Medical Association; past president of the Second District Medical Society and formerly councilor; past president of the Leon-Gadsden-Liberty-Wakulla-Jefferson Counties Medical Society; past president of the state board of medical examiners; formerly member of the state board of health; at various times served as county health officer; served as president of the Association of Seaboard Air Line Railway Surgeons and the Association of Florida Railway Surgeons; local surgeon of the Flint River & Northwestern Railway, Florida Central & Peninsula Railroad and Seaboard Air Line Railway at Tallahassee for fifty years; charter member and also served as president of Tallahassee Kiwanis Club; died March 22, aged 77, of Adams-Stokes syndrome.

George Eason Blue * Montgomery, Ala.; Columbia University College of Physicians and Surgeons, New York, 1916; U. S. Army Medical School in 1918; fellow of the American College of Surgeons; member of the American Association of Industrial Physicians and Surgeons and the American Association of Railway Surgeons; affiliated with the Alabama Power Company, Western Railway of Alabama, Louisville and Nashville Railroad, Atlantic Coast Line Railroad, Seaboard Air Line Railway and the Montgomery City Lines; medical director and vice president of the All States Life Insurance Company; served during World War I; on the staff of St. Margaret's Hospital; died May 27, aged 53, of coronary thrombosis.

Edward Warren Beach * Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1904; assistant professor of anesthesiology, the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; member of the American Society of Anesthetists, Inc.; served as president of the Eastern Society of Anesthetists; member of the board of directors, chairman of the publication committee and active on the anesthesia study commission, Philadelphia County Medical Society; formerly member of the board of directors of the West Philadelphia Medical Association; chief of the department of anesthesia at the Graduate and Wills hospitals; died April 29, aged 64, of heart disease.

Wilbur Taylor Little, Canon City, Colo.; University of Pennsylvania Department of Medicine, Philadelphia, 1893; member of the Colorado State Medical Society; secretary and past president of the Fremont County Medical Society; a lieutenant colonel in the medical corps of the U. S. Army during World War I; coroner and health officer of the county; served on the staffs of the Veterans Administration facilities in San Fernando, Calif., and West Los Angeles; chairman of the local Red Cross chapter for many years; a member of the board of directors of the Fremont County National Bank; on the staff of the Colorado Hospital, where he died April 1, aged 73, of carcinoma of the prostate with metastases.

Ephraim Rankin McLean, Cleveland, Miss.; Memphis (Tenn.) Medical College, 1902; member of the Mississippi State Medical Association; past president of the Tri-State Medical Society; a captain in the medical corps of the U. S. Army during World War I; at one time county health officer, sheriff and tax collector of Bolivar County; an organizer and charter member of the Cleveland Volunteer Fire Department; a charter member and once president of the Cleveland Rotary Club; for many years district physician and surgeon for the Illinois Central Railroad Company; on the staff of the City Hospital, where he died April 21, aged 65, of congestive heart disease.

William Carlton Farmer, San Antonio, Texas; Hospital College of Medicine, Louisville, Ky., 1891; honorary member of the State Medical Association of Texas; honorary life president of the Bexar County Tuberculosis Association; honorary member of the National Tuberculosis Association, of which he had been a member since 1904 and for many years a member of the board of directors; served as president of the Texas Public Health Association and the Texas State Tuberculosis Association; member of the American College of Chest Physicians; formerly owner of Dr. Farmer's Sanatorium; died April 5, aged 77, of carcinoma.

Ethel Langdon Leonard, Staten Island, N. Y.; University of Southern California College of Medicine, Los Angeles, 1902; formerly professor of bacteriology at her alma mater and professor of histology, pathology and bacteriology in the dental department of the University of Southern California; served as

city bacteriologist of Los Angeles; formerly associated with the Woman's Methodist Hospital and the Rockefeller Foundation, Peking, China; also in private practice in Peking, Tientsin and Peitaiho; resident anesthetist in the Staten Island Hospital, where she died April 12, aged 73, of injuries received when struck by a bus.

Alexander Francis Stevenson * Chicago; Rush Medical College, Chicago, 1898; formerly assistant clinical professor of medicine at his alma mater and assistant professor of medicine at the Chicago Polyclinic; medical examiner for the Northwestern Mutual Life Insurance Company from 1904 to 1917; fellow of the Institute of Medicine of Chicago; member of the Chicago Pathological Society and the Chicago Society of Internal Medicine; on the staffs of the Grant and St. Luke's hospitals; died in the Presbyterian Hospital April 2, aged 71, of coronary heart disease and pulmonary edema.

Edgar Harvey Albers, Chicago; Northwestern University Medical School, Chicago, 1917; Army Medical School, 1918; diplomate of the National Board of Medical Examiners; served in the medical corps of the U. S. Army during World War I; died in Clinton, Iowa, May 7, aged 52, of heart disease.

Justus Bernard Chaffin, San Angelo, Texas; University of Texas School of Medicine, Galveston, 1906; member of the State Medical Association of Texas; served two terms as president of the Tom Green County Medical Society; died March 21, aged 67, of coronary occlusion.

Edward Francis Cumiskey, Chicago; Georgetown University School of Medicine, Washington, D. C., 1896; medical director of the Zurich General Accident and Liability Insurance Company; died in the Columbus Hospital May 1, aged 70, of heart disease and adenoma of the prostate.

Edward Benjamin Jacobs, Chicago; Northwestern University Medical School, Chicago, 1910; died April 8, aged 59, of coronary thrombosis and chronic myocarditis.

Samuel Jones Lewis, Columbus Junction, Iowa; Missouri Medical College, St. Louis, 1896; member of the Iowa State Medical Society; past president and secretary of the Louisa County Medical Society; served as mayor of Columbus Junction for two terms; died in Iowa City March 29, aged 73, of angina pectoris.

Orland Smith Mayhew * Vineyard Haven, Mass.; Harvard Medical School, Boston, 1901; examining physician of the Selective Service Board; on the staffs of Martha's Vineyard Hospital, Oak Bluffs, and the U. S. Marine Hospital, where he died February 26, aged 66, of cerebral hemorrhage.

Robert John McNeill, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1901; on the staffs of the Hahnemann Hospital and St. Luke's and Children's Medical Center; died March 8, aged 66, of coronary thrombosis.

Walter Whitcomb Strang * New York; Columbia University College of Physicians and Surgeons, New York, 1896; an Affiliate Fellow of the American Medical Association and a member of the House of Delegates in 1911; formerly served as consulting pediatrician at the Hospital for Ruptured and Crippled; died April 14, aged 73, of carcinoma of the intestine.

Frank Joseph Weber * Olney, Ill.; Washington University School of Medicine, St. Louis, 1904; chief surgeon of the Olney Sanitarium Clinic and the Olney Sanitarium, where he died March 25, aged 65, of carcinoma of the stomach.

Ferdinand Edward Weddigen, Williamsport, Pa.; Maryland Medical College, Baltimore, 1900; served as coroner's pathologist; a member of the medical advisory board during World War I; for many years pathologist in the laboratory at the Williamsport Hospital, where he died April 11, aged 71, of carcinoma of the floor of the mouth.

William Eugene Whitlock * High Springs, Fla.; Medical College of the State of South Carolina, Charleston, 1910; formerly a member of the South Carolina National Guard; a captain in the medical corps of the U. S. Army during World War I; served as Florida department commander and as national vice commander of the American Legion; mayor of High Springs and for many years city health officer; died in Meridian, Miss., April 5, aged 56, of lobar pneumonia.

Frank Paul Winkler * Sibley, Iowa; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; president of the Iowa State Medical Society, 1942-1943; fellow of the American College of Surgeons; part owner of the Osceola Hospital; died May 10, aged 61, of cardiac decompensation.

George Garfield Yost, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1906; died March 10, aged 65, of myocarditis.

significance; that apart from the syllable "Med" in appellee's mark there is no similarity between the marks of the parties; that as the syllable "Med" in appellee's mark is an abbreviation of the term "medical" or "medicine," as used in appellee's mark, it is descriptive of the character and quality of appellee's goods and therefore is not the dominant feature of appellee's trade-mark; and that appellee is not entitled to its exclusive use. The prefix "Med" in appellee's trade-mark "Med-I-Pax," said the court, is defined by the lexicographers as an abbreviation of the terms "medical" and "medicine." See Funk & Wagnall's New Standard Dictionary, Webster's New International Dictionary and the Century Dictionary and Cyclopedia. Furthermore, it was conceded by an officer of the appellee on direct examination before the commissioner that he understood the prefix "Med" to be an abbreviation of "medical" or "medicine." Accordingly the prefix "Med," as used in appellee's mark, is descriptive of the character or quality of appellee's goods and therefore is not the dominant feature of the mark. However, the term "Meds," as applied to appellant's product "Meds," the catamenial device, is not descriptive of the character or quality of the goods. Whether it is registrable as a trade-mark for use on appellant's goods in view of trade-marks previously registered in the patent office² is not at issue before us, since there has been no ex parte rejection of appellant's application for the registration of the mark. The sole question in this case is whether, considering the differences in the marks of the respective parties and the differences in the goods to which the marks are applied, concurrent use of the marks would be likely to cause confusion or mistake in the mind of the public or to deceive purchasers. Considering the fact, the court concluded, that appellee's "Medicated Vaginal Suppositories" are used for medical treatment and for the prevention, cure or alleviation of disease, whereas appellant's *unmedicated* tampons are devices used solely for catamenial protection, and considering the differences in the marks of the parties, we are of the opinion that the concurrent use of the marks on the goods of the parties would not be likely to cause confusion or mistake in the mind of the public or to deceive purchasers. Accordingly, the decision of the Commissioner of Patents refusing registration of the trade-mark "Meds" was reversed.—*Personal Products Corporation v. Allen Laboratories, Inc.*, 141 F. (2d) 702 (1944).

Society Proceedings

COMING MEETINGS

Medical Association, Rockland, June 25-27. Dr. Frederick R. Carter, 142 High Street, Portland 3, Secretary.
National Medical Association, St. Louis, Aug. 14-17. Dr. John T. Givens, 1108 Church St., Norfolk, Va., Secretary.

MEDICAL CORRECTIONAL ASSOCIATION

An Affiliate of the American Prison Association

Annual Professional Meeting, Monday, Nov. 22, 1943

Dr. J. D. REICHARD, Lexington, Ky., Presiding

Segregation of Federal Prisoners

Dr. MARION R. KING, Springfield, Mo.: Many administrative and medical problems incident to the welfare of prisoners involve segregation. Segregation of prisoners in the federal system is carried out as follows: Classification or admission segregation. New prisoners are segregated from others for the purpose of observation, orientation and classification. Medical segregation. The separation of inmates with communicable or contagious diseases is well recognized practice in prison as well as in civilian communities. Similar segregation is also prescribed for mentally afflicted prisoners who manifest symptoms of such a degree and nature as to be a menace to themselves or to others. Punitive segregation. Administrative segregation.

2. For instance, "Medo" for use on sanitary bloomers and "Medix" for use on sanitary napkins.

The Problem of Alcohol

Dr. LAWRENCE KOLB, Washington, D. C.: In this country 16 per cent of all murders and a larger proportion of other serious crimes of violence are committed by persons under the influence of alcohol. Alcohol is also an important cause of social disorder and disease which lead either directly or indirectly to delinquency, ill health and death. Counting all the deaths in which alcoholism is a factor gives a rate of 10.2 per hundred thousand of the population which stamps alcohol as a major cause of death. Striking evidence of the role of alcoholism in the production of disease may be found by examining mental hospital statistics. In 1939 4.5 per cent of all first admissions to state hospitals in the United States were for patients suffering from alcoholic psychoses. In the same year in New York 10.5 per cent of all males and 2.3 per cent of all females admitted for the first time to state mental hospitals had alcoholic psychoses. From 2,000,000 to 2,400,000 persons are arrested for drunkenness each year in this country.

The fact that six times more men than women become alcoholic addicts is explained by the strong social conscience against indulgence by women in the type of behavior that is inseparable from excessive drinking. Women are just as neurotic, unstable and physically and mentally susceptible as men, but they drink less. Likewise the relative infrequency of chronic alcoholism among Jews may be explained at least in part by the group feeling that to throw one's life away on drunkenness is a disgraceful course that no worthwhile person would follow. As a preventive measure we need to build up such a conscience among all groups of the population. Proper education in school, church and homes to the real effect of alcohol would constitute a potent preventive measure. Education should, of course, be divested of unreasonable moral propaganda. Young people cannot be made to look on drinking as a sin when they see so much harmless drinking all around them; but they can be made to look on it as a dangerous practice that may lead where least expected to tragic addiction, with serious moral, social and physical consequences.

The Marihuana Problem

Dr. J. D. REICHARD, Lexington, Ky.: All substances made from cannabis are, by act of Congress, narcotic drugs. Although hemp has been grown for more than a century in the United States and the flowering tops have been smoked for years, only recently has there been any concern about it. Tradition and impression, not always dependable, but worthy of consideration, suggest that the use of hemp has in the past been relatively harmless. Old persons in Kentucky report seeing colored field hands break up and load their pipes with dried flowering tops of the plant and smoke them. There was never the slightest suspicion that this procedure caused abnormal behavior. This is particularly important, since aggressive behavior by a colored person was, to put it mildly, viewed with alarm. Mr. Howland Shaw of the State Department tells me that in Asia Minor the use of cannabis was widespread but that there were no reports of resulting behavior disturbances.

Claims are made that the use of cannabis causes degenerative brain disease. No well controlled study has been published which even suggests this action. Reports that the use of cannabis has caused crime, notably a study from New Orleans, gave the impression that criminals were kidding the examiner, possibly with the hope of receiving more lenient treatment. The results of the study made in the Court of General Sessions in New York City indicated that there was no felony commitment of which was caused by the use of cannabis.

It is possible that some of the alleged harmful effects are due to autosuggestion. It is reported that in the Near East the use of cannabis produces erotic dreams and visions. No such sensations have been reported by the users with whom I have come in contact. Since it is widely believed that use of the drug lowers inhibitions, since the user expects to feel reckless and uninhibited, this expectation, and not pharmacologic action, might explain some of the "results" particularly among young persons.

I have had a feeling that the effect of cannabis resembles that of alcohol; however, behavior of subjects given pyrahexyl, apparently a synthetic analogue of cannabis, resembles more that seen under adequate sedation with morphine; i. e., quietude and peacefulness.

Juvenile Delinquency

DR. ROBERT V. SELIGER, Baltimore: Juvenile delinquency is a self defining term. Legally, in some states, it means offenses against society committed by persons from 7 to 20 years of age. The role of psychiatry is to aid society both in understanding and in working along practical lines to help cure and prevent delinquency. Failure will result in further social and individual chaos.

In America some contemporary influences that have helped produce juvenile delinquency are broken homes (due to divorce, death, alcoholism), careless or ignorant parental supervision (both parents working and inadequate or no community child care), conflict and tension producing goals in life (emphasis on "pleasure," materialistic success), inadequate church attendance and guidance, noncohesive social patterns due to historical eruptions—war, depression, inflation, racial, class and professional intolerances, and endemic mass migration of labor, with present day poor housing and lack of adequate facilities for recreational and community life.

On the constructive practical side our medical psychiatric role in juvenile delinquency should be: 1. Preventive work through Mental Hygiene. 2. To help in reorienting our culture so as to prevent development of the problem *en masse* (knowing that in spite of the best reorientation we shall always have psychiatric and other problems of human nature). 3. From an individual practical approach, to help in getting community agencies to allow psychiatric groups to interpret behavior and not just to judge conduct. 4. To remember that the term juvenile delinquency, as such, for individual treatment is only a label and that we should help the community to understand that we have situational delinquency, feeble minded delinquency, neurotic delinquency, psychotic delinquency and psychopathic delinquency—all to be further studied individually and treated, after studying the individual conscious and subconscious psychodynamics. 5. To remember that only through organized concerted action can lasting helpful results be obtained, and that, in fighting a war to help insure individual physical and spiritual security, we shall have little left to insure if our children are uncared for and so permitted to grow up into asocial, psychiatrically insecure adults and parents of tomorrow.

Selection of Prisoners for the Armed Forces

DR. JOHN W. CRONIN, Brooklyn: The approach to the selection of inmates confined to penal institutions in the armed forces resolves itself into one major question. This question is not What kind of a criminal may be admitted to the armed forces? but rather, What sort of a fellow is the person who committed the crime?

It is rather easy to decide who should not enter the armed forces. Since we at this meeting are primarily interested in the inmates of penal institutions, it is my opinion that those individuals who suffer from organic brain diseases such as brain tumor and the encephalopathies, epilepsy in any form, the feeble minded, the frankly psychotic, most psychoneurotic persons and psychopaths with habitual criminal records certainly would not do well in the armed forces and should not be admitted to them. Again, it is obvious that the sexually maladjusted and the homosexual are considered as undesirable.

Many psychopaths have been admitted to the armed forces and have made good soldiers and sailors. Their very aggressiveness, intelligence and ability to size up situations stand them in good stead, particularly when they, as individuals, are understood by their officers. A psychopath who will accept direction is certainly more desirable in the armed forces than the weak neurotic who will not accept direction from others because he is basically unable to do so. His feelings of insecurity dominate

his behavior and preclude forceful and aggressive action when it is indicated.

Our Selective Service program must be carried on in such a manner as to weed out the undesirable before he is caught up in the maelstrom of wartime action, which, at its slowest, travels at a breakneck speed. If the screening program of the Selective Service can save time for the screening program of the armed forces by weeding out the unfit, much is gained.

Some Aspects of the Chronic Sex Offender

MORRIS PLOSCOWE, Chief Clerk, Court of Special Sessions, New York: In analyzing court cases of sex offenders I have come to the conclusion that, while the laws regarding sexual crimes are clear and distinct, the great majority of sex offenders are punished under misdemeanor charges rather than the felony charges which they really merit and which the law provides. The causes for this are diverse. One reason is that over 85 per cent of the sex offenders plead guilty after their defense attorney obtains for them a reduction of the felony charge to a misdemeanor. This so often occurs because the conviction of a sex offender under a felony charge is extremely difficult, particularly where the complainant's testimony requires corroboration. This practice varies from county to county, depending on the personality of the district attorney and the makeup of the grand jury, which often throws out a case on which another grand jury would indict. Indeed, many courts and grand juries will allow a plea of third degree assault, which is not a sex charge at all, when the charge should be sodomy. Many cases of rape are reduced to the charge of impairing the morals of a minor. In all of these cases reducing the charge to a misdemeanor also reduces the possible sentence from ten to twenty years to one year.

On the basis of a study made of 500 cases for a period of ten years from 1930 to 1940, it was found that the sex offender is less inclined to have a record than the offender who is charged with burglary or robbery. It was found that the real sex offender's makeup was a mixed one, a pattern of criminal disorder, rather than one of sex crime. There was a group in which one could see a definite pattern of sex crime—at least three or more convictions—but this group made up only about 5 per cent of the cases studied.

The psychiatric profession must attempt to convince the lawyer or the judge that the subject in question is not a type and must be handled as an individual. It is up to the psychiatrist to tell the authorities whether or not the offender is dangerous and if he will commit the same crime again.

Unconscious Factors in Crime

DR. GREGORY ZILBOORG, New York: That criminal acts are motivated and determined by unconscious factors is now almost self evident. The proper exposure and study of these factors is still lacking. The major reason for this deficiency is not so much the methodological defects of modern psychology as the fact that the apparatus of justice still jealously protects the criminal from searching clinical investigation. It is regrettable that prisons are not study centers of human psychology. The primitive aspects of justice being the major points of emphasis, the criminal is kept, or executed, rather than studied psychologically. He still is permitted to retain the great secret of his behavior. The prison is a most unused psychologic research laboratory. Unconscious motivations can never be revealed by means of purely formal, classificatory studies.

The assumption that the criminal is a different type of person, a deviated social being and nothing more, is a very callow one. Crime is human, and it has been practiced as long as mankind existed. Also the cultural changes of our civilization have changed our attitude toward various categories of transgressions. Crimes against property are certainly a later cultural product than murder. The interrelation between our own subjective conception of crime and the cultural trends which utilize the age long unconscious aggressions must be understood. Without this understanding crime itself cannot be understood, nor can it be cured. We can go on punishing criminals, but we cannot cure them if the prerequisites mentioned are not fulfilled.

Current Medical Literature**AMERICAN**

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1934 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

13:281-308 (March) 1944

- Pilonidal Cysts and Sinuses. J. M. Mason.—p. 281.
Bromide Intoxication. F. A. Kay, D. Smith and Georgia Johnson.—p. 284.
Importance of Weight in Antepartum Supervision: Treatment of Toxemia. W. A. Cunningham.—p. 289.
Surgical Treatment of Dysmenorrhea. W. C. Simpson.—p. 291.

13:309-332 (April) 1944

- Inter-American Cooperation in Health Work. A. R. Dreisbach.—p. 309.
Minority Opinion on Silicosis. O. R. Troje.—p. 313.
Allergy in Infants. W. A. Clyde.—p. 316.
*Ainhum: Review and Case Report. G. C. Ussery.—p. 319.

Ainhum.—According to Ussery, ainhum is a disease which is almost exclusively found in the dark skinned races, only 4 cases having been observed among white persons. It consists in the spontaneous amputation of the little toe by an adventitious fibrous band. Heredity does not play a role in its production. It has been confounded with congenital amputation, but ainhum is never congenital. That the disease has some connection with leprosy is insisted on by some authorities. According to Zambaco-Pocha, undoubted symptoms of leprosy are present in all cases of true ainhum. It should be looked on as an attenuated form of the latter disease. Its relation to scleroderma is explained by the fact that the latter is a special form of leprosy. It has also been attributed to syphilis, larvae and atavism. The author reports that, because of R. H. Alldredge's report in 1936, he was able to make a correct diagnosis of the disease affecting a Negro aged 71. The first indication of the disease is a furrow on the lower surface of the affected member, usually the little toe, at the proximal interphalangeal joint. The furrow, result of circumferential pressure exerted by a fibrous ring, gradually deepens until the bone is reached, this process sometimes taking several years and in some cases as long as ten. The distal portion of the toe becomes greatly hypertrophied, then drops off, the stump healing without further complications. Surgical measures alone prove of value. Early section of the fibrous ring is sometimes sufficient to arrest the progress of the disease, or division of the skin down to the periosteum may be resorted to.

American Review of Tuberculosis, New York

49:289-394 (April) 1944

- Boeck's Sarcoid and Systemic Sarcoidosis (Besnier-Boeck-Schaumann Disease): Study of 35 Cases. D. Reisner.—p. 289.
Treatment of Tuberculosis with Diasone. C. K. Petter and W. S. Prenzlau.—p. 308.
Tuberculosis and Goiter. C. H. Storey.—p. 323.
Pulmonary Conditions in Rejectees: Analysis of 2,270 Selectees Rejected for Pulmonary Conditions in Induction Centers of Massachusetts. D. Zacks and R. W. Hyde.—p. 332.
Autopsies in Small Sanatorium. S. E. Simpson.—p. 343.
Pneumoperitoneum Supplementing Phrenic Paralysis. A. B. Rilance and F. C. Warring Jr.—p. 353.
War and Tuberculosis. R. G. Paterson.—p. 357.
Laryngeal Swab. E. Fraenkel.—p. 363.
The Magazine Cassette X-Ray Unit. H. R. Edwards and A. Siegel.—p. 366.
Household Tuberculosis: Report of Family Depletion. Dorothy Arenz Oppenheim and J. H. Landes.—p. 374.
Myasthenia Gravis: Case Complicating Pulmonary Tuberculosis with Artificial Pneumothorax. E. Rothstein and H. B. Pirkle.—p. 381.

Arizona Medicine, Phoenix

1:1-44 (Jan.-Feb.) 1944

- Repair of Severed Tendons: New Tendon Suture. C. E. Rees.—p. 12.
Use of Dicumarol in Prevention of Postoperative Pulmonary Embolism. R. S. Flinn.—p. 20.

1:45-100 (March-April) 1944

- Selecting Military Pilot. J. G. Lee.—p. 58.
New Developments in Study of Poliomyelitis. Florence Yount.—p. 61.
Kenny Treatment of Anterior Poliomyelitis in Arizona (Preliminary Report). E. R. Charvoz, E. H. Running and J. Lytton-Smith.—p. 65.
Cancer. E. P. Palmer.—p. 65.

Journal Industrial Hygiene & Toxicology, Baltimore

26:101-132 (April) 1944

- Effect of Silica and Feldspar Dusts on Susceptibility to Lobar Pneumonia: Animal Experiments. Anna M. Baetjer and F. J. Vintinner.—p. 101.
Solubility of Lead Borosilicates in Tissue Fluid. P. L. Beebe and F. S. Maffette.—p. 109.
Exposure to Fluorides in Magnesium Founding. E. J. Largent and I. F. Ferneau.—p. 113.
Metal Fume Fever in Crushed Stone Industry. J. W. Hammond.—p. 117.
Industrial Noise—Its Analysis and Interpretation for Preventive Treatment. D. A. McCoy.—p. 120.
Chromic Acid Poisoning Resulting from Inhalation of Mist Developed from 5 per Cent Chromic Acid Solution: I. Medical Aspects of Chronic Acid Poisoning. N. Zvaifler.—p. 124.
Id.: II. Engineering Aspects of Chromic Acid Poisoning from Anodizing Operations. J. T. Gresh.—p. 127.

Kansas Medical Society Journal, Topeka

45:73-108 (March) 1944

- Renal Calculiviscero Urologic Complex. O. W. Davidson.—p. 73.
Cancer Talks Before Lay Groups. J. L. Lattimore.—p. 74.

45:109-160 (April) 1944

- Proposed Kansas Physicians' Service. B. A. Nelson.—p. 127.

Military Surgeon, Washington, D. C.

94:189-242 (April) 1944

- Health Work in Hemisphere Development. G. G. C. Dunham.—p. 189.
War Neuroses. E. A. Strecker.—p. 196.
Some Factors Affecting Incidence of "Bends" at Altitude. J. F. Fulton.—p. 199.
Technic of Self Preservation. B. Groesbeck.—p. 201.
Conversion of Cruiser into Temporary Hospital Ship. G. W. Smith.—p. 204.
Initial Care of Wounds from Reconstructive Viewpoint. J. L. Gallagher.—p. 212.
Submarine Sailor. C. W. Shilling.—p. 216.
Anesthesia at Front. C. F. McCuskey.—p. 218.
Parachute Injuries. W. J. Tobin.—p. 222.
Desert Hospital. A. E. Porritt.—p. 224.
New Methods with Burns. A. E. Porritt.—p. 227.
Galvanized Tin Sitz Bath. H. M. Carney.—p. 229.

New England Journal of Medicine, Boston

230:419-444 (April 6) 1944

- Perforation of Ileum Following Late Ileostomy for Ulcerative Colitis. J. H. Crandon, T. D. Kinney and I. J. Walker.—p. 419.
*Acute Pericarditis Simulating Myocardial Infarction. L. Wolff.—p. 422.
Diabetes Mellitus. E. P. Joslin.—p. 425.

Acute Pericarditis Simulating Myocardial Infarction.

During the past year Wolff has observed 5 cases of pericarditis, in 4 of which a mistaken diagnosis of acute myocardial infarction had been made. The distinguishing feature of the pain of pericarditis is its accentuation by bodily movements, cough and inspiration. In most cases of myocardial infarction a friction rub is never heard; when present, it is rarely heard in the first twenty-four hours, is usually localized and lasts only a short time. In acute pericarditis the rub is heard within one to a few hours after onset of pain, tends to be loud, is audible over the entire precordial area and is present for days or weeks. Pleural involvement is demonstrated in pericarditis by the presence of a pleural friction rub or by thickening of the pleura and a small collection of pleural fluid. The heart dilates in some cases of acute pericarditis to a degree that exceeds that seen in myocardial infarction; nevertheless, myocardial failure does not occur in acute pericarditis. In 75 per cent of the cases of myocardial infarction, fluoroscopy disclosed a localized area

of diminished, absent or reversed ventricular pulsations. No abnormalities of the sort were demonstrable in pericarditis. In the electrocardiogram of pericarditis elevation of the RS-T segment is not accompanied by reciprocal depressions, the ascending limb of the T wave is straight or concave upward or the T wave is dome shaped, significant QRS patterns do not occur, and the evolution of the entire pattern with reversion to normal takes place in a matter of weeks. Multiple chest leads should be used in myocardial infarction. The temperature elevation in pericarditis is much higher and lasts longer, the pulse is slower and the leukocytosis is greater than in infarction. The average age of patients with pericarditis is lower than that of patients with myocardial infarction. Respiratory infection or a "grippy" feeling is more often associated with pericarditis than with infarction. It is important to make the correct diagnosis, since in pericarditis prolonged and careful treatment is not necessary and the prognosis is excellent, in contrast with the seriousness of myocardial infarction.

New York State Journal of Medicine, New York

44:673-832 (April 1) 1944

- Diagnosis, Treatment and End Results in Malignant Tumors of Nasal Sinuses. G. A. Robinson.—p. 713.
Hotel Outbreak of Gastroenteritis Due to Salmonella Derby. F. E. Coughlin.—p. 718.
Use and Abuse of Bed Rest. H. Gold, W. Dock and others.—p. 724.

44:833-944 (April 15) 1944

- Primary Atypical Pneumonia: I. A Statistical Report of 196 Cases. N. S. Moore, H. B. Wightman and E. C. Showacre.—p. 869.
Id.: II. Observations of Radiographic Patterns. E. C. Showacre, H. B. Wightman and N. S. Moore.—p. 872.
Cancer Reporting in New York State. M. L. Levin.—p. 880.
Thoracolumbar Sympathectomy in Essential Hypertension. J. W. Hinton.—p. 884.
Diagnosis: Clinicopathologic Conferences. Fourth Medical Division of Bellevue Hospital.—p. 889.
Administrative and Professional Problems of Medical Practice in the Hospital. A. M. Shwittalla.—p. 894.

North Carolina Medical Journal, Winston-Salem

5:81-120 (March) 1944

- Roentgen Rays in Treatment of Nonmalignant Disease. L. W. Oehlbeck.—p. 81.
X-Ray and Radium Therapy in Lesions About Eye. R. J. Reeves.—p. 85.
Use of Mineral Oil by Mouth and by Bowel. C. A. Anderson, G. L. Carrington and R. E. Brooks.—p. 87.
Simplification of Method of Electrical Examination and Therapy of Nerves and Muscles. H. de Jong.—p. 91.
Peripheral Circulatory Failure: Its Mechanism and Treatment in Medical Disorders. F. B. Marsh.—p. 93.
Present Day Knowledge of Penicillin. E. S. Faison.—p. 97.
Postpartum Sterilization: Indications and Advantages. F. R. Lock and R. C. Forman.—p. 101.
Thumbnail Sketches of Eminent Physicians. J. C. Trent.—p. 103.

Northwest Medicine, Seattle

43:97-128 (April) 1944

- Breast Tumors and Clinical Differentiation. G. Kunz Jr.—p. 101.
Role of Roentgen Therapy in Treatment of Carcinoma of Breast. F. J. Rigos.—p. 105.
Surgery of Breast Tumors. C. B. Ritchie.—p. 106.
Care of Colostomies. W. B. Hutchinson.—p. 107.
Hydronephrosis in Infants. A. H. Peacock.—p. 110.
Surgical Treatment of Massive Gastroduodenal Hemorrhage. T. T. Manzer.—p. 112.
Transportation of Semen Specimens. W. M. Whitehead.—p. 113.
Nervous Reactions in Naval Wartime Personnel. J. M. Hill.—p. 114.
Tuberculosis Rate in Western State Hospital. R. W. Brown.—p. 116.

Hydronephrosis in Infants.—According to Peacock, urinary obstruction resulting in hydronephrosis and hydronephrosis is not a condition limited to adults. Congenital anomalies, as phimosis, stricture of the meatus or urethra, hypertrophied verumontanum, contracture or hypertrophy of the bladder neck, and valves or folds of the posterior urethra, have caused serious obstructions in infants. In the upper urinary tract congenital obstructions are caused by aberrant vessels, strictures of the ureter, valves, kinks and unusual insertions in the pelvis. Congenital hydronephrosis frequently escapes detection, only to be an acute problem in later years. In taking the history of adults suffering with urogenital disease, it is often found that the

symptoms go back to childhood or early youth. In all patients suffering with recurring pyuria, irrespective of their age, a complete urologic survey should be made. The author presents 2 case reports to illustrate the effect of obstructive urinary anomalies in infants. Fever, pyuria, malnutrition and gastrointestinal disturbance, especially when recurring, are suggestive of urinary tract disease. Distention of the lower abdomen in infants can be caused by retention of urine in the bladder. All obstructions of the urinary system in infants and children should be corrected as early as possible to prevent irreparable renal destruction.

Pennsylvania Medical Journal, Harrisburg

47:641-768 (April) 1944

- *Hormonal Tumors of Adrenal Gland. G. F. Cahill.—p. 655.
Post-Transfusion Hemolytic Reactions. M. M. Strumia.—p. 668.
Malignant Cystadenoma of Ovary with Pleural Effusion (Meigs Syndrome). H. B. Anderson.—p. 671.
Prevention of Bronchiectasis. L. H. Clerf.—p. 676.
Chart of Normal Growth. J. H. Barach.—p. 681.
Analysis of Five Year Incidence of Premature Births. L. F. Ritmiller and R. E. Nicodemus.—p. 690.
Hearing Aids. W. Hughson.—p. 694.
Planned Search for Foci of Infection in Chronic Disease as Means of Increasing Span of Life, with Particular Reference to Gastrointestinal Tract. W. W. Lermann.—p. 699.
Medical and Surgical Masquerades of Depressed State. R. Denison and J. C. Yaskin.—p. 703.
Cardiovascular Survey of Supervisors: II. P. M. Rike and F. J. Gregg.—p. 708.
Psychoses in Officers in World War II. A. M. Duval.—p. 712.

Hormonal Tumors of Adrenals.—Cahill reviews cases of adrenal tumors that were observed at the Squier clinic at the Presbyterian Hospital of New York City. Girls may present changes toward adult masculinity. Five children of this type have been studied. The condition of all began with hypertrophy of the clitoris, the appearance of hair on the genitals, excessive body growth, increase in musculature, deepening in voice and accelerated development. Androgens were demonstrated in the urine. Air insufflation roentgenograms showed the adrenals clearly. Four children had apparently a bilateral increase in size. Operative explorations showed female internal organs. Section of the adrenals showed an apparent age acceleration in the adrenal zones and cells. None of these children have shown evidence of adrenal tumor. Changes toward masculinity may also appear in adult females. Male secondary sex characters occur, and there is a repression of female characteristics. Hirsutism is the first change noted, followed by irregularity or cessation of the menses, changes in the body contour and enlargement of the clitoris. At the author's clinic several hundred of such women have been observed, and it has been found that the anatomic condition of the adrenal gland often bears no relation to the type or severity of the symptoms. Tumor is not a frequent cause of the syndrome. Five male children with prematurity were studied. Only 1 of these showed an enlargement of one adrenal, but this was not operated on and thus not confirmed. Tumors with excess of estrogens apparently are the rarest of all the hormonal tumors of the adrenal. Only 6 cases of tumors with excess estrogens producing changes in the adult male toward femininity have been reported. The author has seen 1 case. From cases reported in the literature it appears that the adrenal was responsible for the feminization. In neither of the 2 patients who recovered after removal of the tumor did adrenal deficiency occur. The author studied 3 cases with tumors due to excess androgens and moderate other metabolic disturbances. The second had sexual changes and other metabolic changes. The last had moderate sexual changes and pronounced general metabolic changes. In these the demonstration of the tumor by air insufflation was less clearly defined, as fatty deposits and edema developed. The operative results show that apparently, with the excess of metabolic hormones produced by the tumor, hypofunction and atrophy occur in the opposite adrenal. Tumors of the adrenal medulla that produce hormones are rare. When an abnormal number of pheochromocytoma cells are produced, as in a tumor, the formation

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

56:33-58 (Feb.) 1944

*Textile Dermatitis. J. H. Twiston Davies and A. Neish Barker.
—p. 33.

Textile Dermatitis.—Davies and Barker state that of 670 admissions to the skin wards of a large military hospital 110 (16.4 per cent) concerned dermatoses proved by patch tests and the observed effect of resuming khaki clothing to be wholly or partly due to intolerance by the skin of contact with woolen textiles. The first persons affected were discovered among patients repeatedly referred for treatment of scabies. The cutaneous manifestations included pruritus, erythema, erythematous dermatitis, eczematoid dermatitis, lichenification, facial eczema, prurigo simplex and prurigo simulating scabies. The author believes that all of the described types of eruption are mainly referable to intolerance of the skin to wool. Treatment consists primarily in removal of the irritant. The patient sleeps between sheets, has a cotton or linen shirt and wears cotton pajamas by day under his hospital blues. Simple remedies, such as calamine liniment or lotion, are no less efficacious than elaborate ones. Pyodermic lesions, such as furuncles and ecthyma, are covered with disks of elastoplast, and when eczema is present it is treated as such. Cases of long standing, with strongly positive patch tests, especially those giving positive reactions to several kinds of woolen material and to other substances as well, must be regarded as incurable. Men with mild lesions of the pseudoscabious prurigo type recover slowly when protected by cotton and excused from heavy physical exertion. Patients with moderately severe lesions do not lose their symptoms or rash completely, but if protected by cotton they may be returned to duty without necessarily becoming worse. As a general rule they relapse and have to be invalided.

British Medical Journal, London

1:349-382 (March 11) 1944

*Toxic Effect in Women Exposed to Industrial Rubber Solutions. J. L. Hamilton-Paterson and Ethel Browning.—p. 349.

*Sulfonamides in Ophthalmia Neonatorum. A. Sorsby and Elizabeth L. Hoffa.—p. 253.

Blood Pressure in Midwifery. W. Radeliffe.—p. 354.

Nervous Breakdown in the Navy: Domestic Difficulties as Causal Factor. G. Tooth.—p. 358.

Tonic Action of Strychnine. W. F. Anderson.—p. 360.

Toxic Effects of Rubber Solutions.—Hamilton-Paterson and Browning report results of two years' investigation of the effects of industrial rubber solutions on workers using them. Most of the workers are women. The solutions contain varying amounts of benzene and, of the aromatic hydrocarbons, benzene, xylene and toluene. The examinations were carried out in thirteen factories scattered over the country. The investigation has been conducted in two parts. In the first, sample groups in each factory, totaling 200 women, were clinically examined and had blood counts made. These counts have been compared with the counts of 200 control women. In the second part of the investigation all the women working in one factory have been similarly compared with a group of women in the same factory who had never been in contact with rubber solution. The effects of "rest" were also studied. An analysis of the results shows that the earliest and most striking changes caused by benzene absorption in the blood are leukopenia and neutropenia. There is no correlation between the symptoms complained of and the onset of hematologic changes. This is important, because clinical examinations alone are probably useless for the specific detection of early cases; they have great value in the diagnosis of cases of deterioration in health due to other causes. The authors suggest that, by regular white cell counts and by suitable periods of "rest," chronic benzene poisoning might be averted. The periods of "rest" consisted of several months of work away from the rubber solutions. The substitution of a relatively non-toxic solvent such as solvent naphtha would render hematologic control of the worker unnecessary; but as long as benzene is used it is advisable that the persons exposed should be given

the protection of routine blood examinations. The excretion of increased amounts of organic sulfates in the urine is a feature of severe benzene poisoning, but in this investigation this was not observed. Benzene will produce hematologic changes before it is excreted in significant amounts.

Sulfonamides in Ophthalmia Neonatorum.—In an earlier report Sorsby and Hoffa had given an account of the value of the administration of sulfapyridine in 273 cases of ophthalmia neonatorum. By comparison with 46 cases treated by the classic local methods, it was concluded that sulfapyridine was a revolutionary advance and that the classic methods of local therapy no longer had any place in the treatment of ophthalmia neonatorum. The present paper deals with a further 258 cases. Of these 133 were treated with sulfapyridine, 43 with sulfathiazole, 28 with sulfamezathine, 31 with sulfadiazine and, in the residual group of 23, more than one of these sulfonamides were used as the cases proved resistant or intolerant to the drug employed initially. Clinical cure was obtained within eight days in 85.7 per cent of the 258 cases. There was no appreciable difference in the action of the four sulfonamides used. Gonococcal cases responded more rapidly to sulfonamide therapy than did the nongonococcal cases. Inclusion bodies were found in 27 instances: twice in association with organisms and 25 times without such association. These cases responded well to sulfonamide therapy. Only exceptionally is a case completely resistant to sulfonamide therapy. It is more a matter of sluggish response than of total resistance. The routine at White Oak Hospital now includes administration of the sulfonamides for three days after clinical cure; fewer relapses are now observed.

Medical Journal of Australia, Sydney

2:513-532 (Dec. 25) 1943

Mosquito: Teacher of Medicine. S. F. McDonald.—p. 513.

Kline Reaction of Nauruan Lepers and Nonlepers. L. A. Windsor-McLean.—p. 520.

1:81-100 (Jan. 29) 1944

Remarks Concerning Vitamin Deficiency in Australian Adult. K. Maddox.—p. 81.

*Cutaneous Reaction to Influenza Viruses. W. I. B. Beveridge and F. M. Burnet.—p. 85.

1:101-120 (Feb. 5) 1944

Laboratory Investigation of Renal Function. Vera I. Krieger.—p. 101.

Incidence of Tetral Dermatitis, or C. E. Rash: Review of Investigations Carried Out in Australian Fuse-Filling Factories. H. M. L. Murray, R. W. Prunster and R. D. Anderson.—p. 104.

Record of Commoner Skin Diseases at Royal Australian Air Force Hospital. B. N. O. Colahan.—p. 107.

Cutaneous Reaction to Influenza Viruses.—In the work of intranasal immunization against influenza, Beveridge and Burnet occasionally observed symptoms which suggested that an allergic reaction was being produced. This induced them to undertake experiments on the effects produced when influenza virus antigens in the form of specifically infected allantoic fluid or modifications of it were injected intradermally in normal subjects. In order to determine whether the reaction was a specific response to influenza virus antigens, it was desirable first to show that it was not produced by material known not to contain influenza virus and, secondly, to show that purified or partially purified influenza virus retained the power to provoke the reaction. It was found that intradermal inoculation of a 1:10 dilution of unheated or boiled allantoic fluid infected with influenza virus A or B produces a cutaneous reaction in most adults and in some children. Similar reactions are not produced by normal allantoic fluid or by suspensions of chick tissue containing from ten to twenty times as much protein as the influenza reagent. Partial purification of the virus does not diminish its capacity to produce reactions. In adults the size of the reaction bears no correlation to the serum antibody titer. Among 31 children tested intradermally with influenza A and B reagents there were eighteen reactions, and in all but 1 instance the children were shown by serologic test to have been infected in the past by the corresponding viruses. However, many children who gave positive reactions to serologic tests failed to give appropriate skin reactions. The suggestion is made that allergy to the virus may play a part in resistance to infection and, when infection does occur, in the production of symptoms.

Book Notices

Traumatic Injuries of Facial Bones: An Atlas of Treatment. By John B. Erlich, M.S., D.H.S., M.D., Consultant in Laryngology, Oral and Plastic Surgery at the Mayo Clinic, Rochester, Minn., and Louie T. Austin, D.D.S., F.A.C.D., Head of Section on Dental Surgery at the Mayo Clinic. In collaboration with Bureau of Medicine and Surgery, U. S. Navy. Cloth. Price, \$6. Pp. 600, with 333 illustrations. Philadelphia & London: W. B. Saunders Company, 1944.

This book covers almost every conceivable injury to the bones of the face, with specific details of the authors' conception of the treatment of each. The first chapter is devoted to general considerations common to the care of all injuries of the facial bones, including treatment of hemorrhage and shock, establishment of an airway, provision of adequate drainage and principles of fixation. It is gratifying to note the authors' restrained enthusiasm for the use of external pin fixation appliances in the treatment of fractures of the mandible. Fractures of the mandible, of the maxilla, of the malar bones, of the nasal bones and of both jaws and multiple facial fractures are then discussed in a systematic manner, each type being presented in the form of a problem in which the specific treatment is given. The last few chapters are concerned with defects of the mandible requiring bone grafting, restoration of contour in defects of the facial bones by means of skin, bone and cartilage grafts and prosthetic appliances, construction of plaster head casts, details of interdental wiring and splint construction. The illustrations, some in color, are above criticism and clarify every step described in the text. This is undoubtedly the most important book on the subject that has appeared so far and should be in the hands of every one concerned, surgeon or dentist, military or civilian, who is called on to treat injuries of the face and jaws.

Soybeans from Soup to Nuts. By Annie Williams-Heller, Nutrition and Food Consultant, and Josephine McCarthy, Home Economics Director, American Institute of Food Products. With a foreword by Walter H. Eddy, Ph.D. Cloth. Price, \$1.25. Pp. 119. New York: Vanguard Press, Inc., 1944.

This is a little book full of suggestions for working that valuable food the soybean into a tasty dish on any part of the menu. Designed for the housewife to help stretch the wartime shortage of the staple foods with which she is familiar, it first attracts the interest with a brief description of the history and Chinese background of the soybean and then with a brief discussion of its nutritional merit commands appreciation for this vegetable. It is of interest to learn that there are more than a hundred edible varieties of soybean, although relatively few are in common use. As shown in a chart and table, an average serving of soybeans has a considerably greater nutritional value than a comparable amount of other types of beans or steak. These comparative values are accurate representations of the facts but fail to acknowledge the superior quality of the meat protein. The adaptability of this bean to utilization as a food in numerous forms increases its usefulness. In such forms as fresh green beans, dried beans, sprouted beans, flour, flakes, oil or milk it lends itself to varied use in the diet. Directions for the actual preparation of these types of soybean dishes are given. The greatest portion of the book is taken up with recipes which incorporate soybeans in one form or another into any number of menu dishes. These are designed with economy and wartime restrictions in mind and should serve to help introduce a very suitable food into the family menu.

Maurice Arthus' Philosophy of Scientific Investigation: Preface to De l'anaphylaxie à l'immunité. Paris, 1921. Translated from the French, with an Introduction by Henry E. Sigerist. Foreword by Warfield T. Longcope. Reprinted from *Bulletin of the History of Medicine*, Volume XIV, Number 3, October 1943. Boards. Price, 75 cents. Pp. 26. Baltimore: Johns Hopkins Press, 1943.

In the introduction to this reprint Dr. Sigerist gives a brief but impressive account of Maurice Arthus as a teacher and experimental physiologist. The preface, which is ably translated, eloquently advocates the methods and principles of experimental research introduced by Claude Bernard, practiced by Louis Pasteur and by Arthus himself. Arthus felt compelled to do all he could to pass these methods and principles on to his students and followers. His analysis of the experimental

method, his insistence on thoroughness, independence and originality will guide and sustain the beginner in research. It is fortunate that "this unique piece of medical literature" now is easily available.

Case Histories in Abnormal Psychology. Assembled by Calvin P. Stone, Department of Psychology, Stanford University. Paper. Pp. 98. Stanford University, Calif.: Stanford Bookstore, 1943.

This paper volume, without index, is simply a presentation of approximately 90 cases culled from the work of some twenty-four authors. The case histories are headed with the diagnosis, the type of condition which they describe. The entire material is divided into seven chapters. However, there is no discussion of the case histories, no dynamic consideration of the material. In fact, the work is simply a compilation of case descriptions with a great variation in manner of presentation depending on the source of the material. The function of such a book is extremely questionable. The assemblage of case histories grew out of the author's desire to supply classes in army psychology with a variety of abnormal reaction types. The need of army psychologists for such material when their function is concerned with classification and various aptitude tests is dubious. The author surely does not intend that these psychologists should be diagnosticians or therapists. True, there are not enough psychiatrists in the services, but surely material such as is contained in this book cannot be of value in making psychologists into psychiatrists. Psychiatrists will always have to be medically trained personnel.

What Is Hypnosis: Studies in Auto and Hetero Conditioning. By Andrew Salter. Cloth. Price, \$2. Pp. 88. New York: Richard R. Smith, 1944.

It is doubtful if the author ever really answers the question he proposes in the title of this book, but certainly he tries to do so. The experimental research work which he has done in conjunction with Dr. W. H. Gardner is both fascinating and instructive. Following Pavlov's studies on "conditioning reflex" reactions in animals, Salter has worked out a similar process with human beings which he prefers to call "associative reflex" reactions. At the present time hypnosis along with almost every tried (successful or unsuccessful) form of mental therapy is being employed in an attempt to aid or shorten the treatment of the neuroses and psychoneuroses. Well informed therapists have practically discarded its usage because it has been found that similar or even better results may be obtained from the use of sodium amytal or sodium pentothal and that the subject under treatment does not develop the close attachments to the therapist that are inevitable when hypnosis is employed. Salter mentions transference phenomena and the equating of the hypnotist with parental figures; but, while not denying that this theory has foundation in fact, he fails either to develop or to discuss this extremely important concept. The book may be quickly and profitably read by any one interested in the subject. It is well written, and the reader gets a clear picture of the conditioning processes which are described.

The Loom of Language. By Frederik Bodmer. Edited by Lancelot Hogben. Cloth. Price, \$3.75; \$4.75 (Canadian). Pp. 692. New York: W. W. Norton & Co., Inc.; Toronto: McLeod, Ltd., 1944.

As a companion volume to "Mathematics for the Million," by Lancelot Hogben, the publisher now offers a work along similar lines related to the growth of language. It is the belief of the author and the editor of this work that any one can learn languages, and they point out that the people of small nations, the Dutch, the Danes and the Norwegians, for example, begin early in life to acquire at least two languages because of the necessity for having the language of a large nation as well as their own. The book offers not only a history of the growth of language but some interesting techniques for learning languages, including tricks of translation, key combinations of roots, phonetic patterns and selected lists of prepositions and pronouns in various languages to show variations in their use. Grammar also is considered as one of the stumbling blocks in learning languages. At a time when the world is becoming much more compact because of the war and developments in transportation, this can be considered an exceedingly useful and, in fact, necessary book.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

CUTANEOUS LESIONS IN TUBERCULOSIS AND ERYTHEMA NODOSUM

To the Editor:—Is there any cutaneous lesion indicative of pulmonary tuberculosis in an adolescent girl? I am, of course, aware of the chronic tuberculous lesions of the skin usually found in adults which may occur with or without the pulmonary involvement.

Chancellor H. Whiting, M.D., New York.

ANSWER.—There is no cutaneous lesion indicative of pulmonary tuberculosis in an adolescent girl. Chronic tuberculous lesions of the skin usually found in adults, which may occur with or without pulmonary involvement is mentioned. There is also erythema nodosum, a red, nodular eruption usually occurring in the skin over the tibia but often on the rest of the lower extremities, the arms and infrequently on the chest. The lesions soon become elevated and painful. Within a few days to a few weeks they subside, and for a while a brown area of discoloration of the skin remains. Many persons believe that this is a manifestation of tuberculosis, although there are other causes. When it occurs with tuberculosis it is usually associated with a primary attack of the disease and most often appears three to seven weeks after the infection begins, at the time allergy reaches its height. Formerly it was seen most frequently in children because most children develop primary tuberculosis. However, in recent years in parts of the world in which primary tuberculosis develops more frequently in adults than in children, erythema nodosum has often been reported to accompany this condition in adults.

It has been frequently observed, particularly in the Scandinavian countries, among students of nursing, who enter the schools before they have been infected with tubercle bacilli, but who in the course of their training come in contact with tuberculous patients and develop primary tuberculosis. In some places 25 per cent or more of such students have been reported to have erythema nodosum about the time allergy reaches its height of development. In this country it appears in such students but in a much smaller percentage. The reason for this difference in incidence is not known.

In any event, the presence of erythema nodosum is not indicative of pulmonary tuberculosis. While tuberculous pulmonary infiltrations may be present in such cases and can be detected by x-ray film, the great majority do not have such lesions, or at least the lesions do not attain such proportions as to cast shadows. For the diagnosis of pulmonary tuberculosis in an adolescent girl the tuberculin reaction is a prerequisite. Usually evidence of a lesion can be detected by x-ray film, with the exception of (1) those which are not yet macroscopic, (2) those located in the 25 per cent of the lung not visualized on the film and (3) those which have not attained sufficient consistency to absorb x-rays. Even when a shadow is visualized on an x-ray film, one must constantly keep in mind that there are other causes of such shadows and therefore careful study is necessary by various methods to determine the cause of the lesion in question.

FECAL IMPACTION WITH FEVER AND LEUKOCYTOSIS

To the Editor:—Our medical staff has for long indulged in controversy over the causal relationship of fecal impaction, temperature elevation and leukocytosis. I would be grateful for a discussion in *Queries and Minor Notes*.

M.D., Illinois.

ANSWER.—Leukocytosis and elevation of temperature are not the rule in fecal impactions, although they may occur. Little is known concerning the mechanism. It is presumed that the accumulation of feces leads to a local irritation of the distended bowel, resulting in inflammation.

Mullarkey (R. E.: Surgical Significance of Fecal Impaction, *Northwest. Med.* 40:118 [April] 1941) has reported 3 cases with leukocytosis up to 23,000 and fever up to 101 F. No other lesion was found to be responsible for the symptoms and findings, which rapidly disappeared after the impaction was relieved. Palmer (personal communication) has observed a similar case. The condition can resemble intestinal obstruction due to other causes and has to be considered in the differential diagnosis of acute surgical conditions in the abdomen.

CORACHAN METHOD OF SKIN GRAFTING

To the Editor:—I have noticed that the Norfolk Naval Hospital uses the Corachan method for skin grafting. Quotation from the newspaper follows: "The surgeon shaves a small ellipse of full thickness skin from any unburned portion of the patient's body and closes this wound with sutures. He then slices the excised skin into 70 to 80 small sections each about 1 mm. in width and places these strips on the burned surface." My questions are Why do they use only a small ellipse of full thickness skin? Kindly tell me if long straight narrow strips (about 10 inches long) were ever tried for this purpose. If not, what are the disadvantages? It seems to me that long strips would be advantageous and time saving and the wound can be quickly closed with a continuous dermal suture resulting in a linear scar, hardly noticeable. I have tried long strips in 2 cases with uniformly good results. In the Corachan method of skin grafting is any attempt made to place the grafts with the epidermal side upward? Where can I find the full details of the Corachan technic of skin grafting?

B. F. Glasser, Captain, M. C., A. U. S.

ANSWER.—The newspaper description of the Corachan method of skin grafting is evidently inaccurate. The necessary amount of the whole thickness of the skin to furnish the grafts without subcutaneous fat is excised in the shape of an ellipse, and the wound is closed in a line. Then this piece of skin is cut transversely into strips not thicker than 2 mm. and not longer than 1.25 cm. These pieces of skin are then laid flat on the granulations about 1 cm. apart, no attempt being made to have the epithelial surface upward. Small pieces are used, as the spread of epithelium from a number of smaller pieces is greater than from a single larger graft. Long narrow and long wide strips of whole thickness skin are frequently used successfully in suitable places but would not accomplish the desired purpose in the cases in which the Corachan method is usually employed. The details of the Corachan method can be found on page 298 of the *Principles and Practice of War Surgery*, by J. Trueta, St. Louis, C. V. Mosby Company, 1943.

HERPES ZOSTER IN INFANCY

To the Editor:—Can and does herpes zoster occur in adolescence and childhood?

Chancellor H. Whiting, M.D., New York.

ANSWER.—Authorities agree that herpes zoster occurs at all ages. It is, however, rare in infancy and more rare in the newborn. Freud, Rook and Gurian (*Herpes Zoster in the Newborn*, *Am. J. Dis. Child.* 64:895 [Nov.] 1942) report a case in a 3 day old infant. They found reports in the literature of only 4 others in newborn babies. In 2 other cases the diagnosis of intrauterine herpes zoster was made from scars in typical arrangement present at birth. They quote Comby, who in an extensive pediatric practice for over forty years saw only 84 cases of zoster in children, the youngest 8 months old.

Freund, quoted by Schönfeld (*Zoster und Herpes Simplex*, *Handb. d. Haut. u. Geschlechtskr.* 7/1, Berlin, J. Springer, 1928, p. 32) studied the incidence of herpes zoster in the general population according to age. Below the age of 10 there were 43 cases in 10,000 persons. In the next decade there were 144, and from then on to old age there was little variation in incidence.

CAPILLARY ANGIOMAS OF FACE IN PREGNANCY

To the Editor:—What is the cause of the development of small capillary angiomas on the face during pregnancy? Actually are these related to pregnancy? Will they disappear on termination of the pregnancy?

Captain, M. C., A. U. S.

ANSWER.—The cause of the development of capillary angiomas on the face during pregnancy is unknown. It probably has no relationship to gestation. There is, however, some relationship between simple angiomas and sex, because such angiomas are distinctly more common in women than in men. Capillary angiomas which develop during pregnancy do not always disappear after delivery.

EPISCLERITIS

To the Editor:—What can be done to treat and prevent attacks of episcleritis, which, I am told, are simply part of a rheumatoid syndrome from which I have been suffering for the past twelve years. These bouts of episcleritis usually last from three to four days and are extremely annoying.

M.D., Illinois.

ANSWER.—If the episcleritis is not due to infection or tuberculosis, it is most likely due to allergy. The most frequent allergens encountered in this condition are foods or molds. Careful and complete studies should be made, including a diary of the diet to determine the cause. The offending agent should be eliminated if possible or the patient desensitized, or both. All other treatment is only palliative.

